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#### RESPIRATORY DISEASES\*

D. Armstrong, M. D. DURANT

In my preparation of the paper on the treatment of respiratory diseases, I shall confine my remarks to the treatment of influenza and pneumonia, the two most frequent respiratory diseases.

The fact that there is no specific treatment for respiratory diseases, such as inluenza and pneumonia, was forcibly impressed upon the medical profession soon after the outbreak of the influenza epidemic during the world war. The results, of course, naturally were that each physician devised plans of treatment which he applied on the spur of the moment, under stress of necessity, and judged the effi-ciency of his methods of treatment by the results obtained. So numerous and varied were the treatments that the patent medicine manufacturers and quack remedy inventors reaped an enormous harvest from the suffering public, through their advertisements of cures broadcasted in the newspapers, until the A. M. A., through the journal, issued a denial of any cure, and the United States Public Health service issued a bulletin to the same effect. Therefore, the medical treatment of these respiratory infections followed somewhat after the age-old custom, that the less there is known of a disease the more treatment there is for it.

It makes little difference with the patient or with the family of the patient whether the eumonia is a bronchopneumonia or a tobar pneumonia, whether it is of a primary or of a secondary type, whether it is due to the pneumococci, streptococci or any other organism, or a pneumonia following a surgical procedure. All the patient and family want is for the patient to get well as quickly as possible.

In the treatment of influenza and pneumonia every physician is apt to have a line

of treatment which he prefers to follow. It may be serum therapy, camphor injection, creosote medication, cold fresh air with little or no medicine, or heat in some form applied locally to the chest, or a combination of these methods. Not all of these methods can be followed, nor do I think any of them devoid of merit. In fact all are based on sound therapeutic principles and are used with success, but the very indiscriminate nature of this sort of treatment, even though for the most part good and useful, leads one to infer that all methods cannot be of equal value, so the fewer the medicines the greater will be the number of cures, would seem to be especially applicable in the treatment of influenza.

The methods of treatment usually followed as a routine by myself will be given without much comment, except that I have tried to limit my treatment to as few drugs as possible. Attention should be given to prevent the spread of the disease by such ordinary measures as burning and disposal of the sputum, giving proper instructions as to heating and ventilating the sick room, and above all, in my judgment, the importance of rest in bed until all symptoms have disappeared. I usually begin medication by giving six or eight doses of calomel and soda followed with saline laxative, and a capsule containing aspirin, 5 grains, Dovers powder, 3 grains, pulvcamphor, 1-2 grain, every two hours, and, I believe the mixed vaccines are useful, if given early. But in the matter of preventing the extension of the infection to other parts of the lungs. I believe heat is the best measure we have, and heat in the lung it-self, if possible. Hot water bottles, electric pads and the old home-made mustard plaster applied to the chest we have found very useful. The mustard plaster should cover the entire chest and should remain on until the skin turns red, then remove and re-apply every six or eight hours. Diathermic heat, where it can be applied, is by far the best form of heat to the lungs, as it is generated in the lung itself. Shortly after the diathermic is begun the

patient will voluntarily state that he feels better and it will be noticeable that the patient is more comfortable, if there is any cyanosis it will improve, respiration will be easier and free from the characteristic grunt, the temperature curve will descend, the pulse will become more normal, and within a few hours the patient presents a picture of confidence and ease.

Diathermic heat is not a specific in the treatment of pneumonia and influenza, but it is a distinct and valuable aid, and its failure to be followed early by note-worthy and symptomatic relief indicates an unfavorable prognosis. Iodine administered intravenously in ten minims doses and given in 10 c.c. distilled water is claimed by a number of authorities to be almost a specific in influenza. In a report of a series of 500 cases treated by the iodine intravenously at one of the large American hospitals, most of the cases were greatly benefitted by the first injection, some of the more serious cases required the second and a few even the third injection, while one case, the most serious of all, was given five injections. I mention this iodine treatment for the reason that it strikes me as being a good one and would like to know if any of the doctors present have used this method, and if so, with what results. In view of the fact that we are entirely at a loss to designate any microorganism as the cause of influenza, we are forced to follow the time-honored procedure of symptomatic treatment for its alleviation. the usual precautions of rest in bed, plenty of fresh air, disinfection of bedding, clothing, utensils, etc., are merely routine measures which experiences have shown to be excellent safe-guards, both for the welfare of the patient, as well as for the protection of those about him, in all forms of infectious diseases, but with medicine there has been such a vast number recommended and used on the "hit and miss" plan. that it may be said with influenza as with most other infectious diseases, the fewer and simpler the medicines and drugs used, the better the ultimate results will be. This does not mean that special drugs such as aspirin, opium, camphor, creosote, and others shall not be used when an occasion demands, but that they shall not be given unless indicated. The main idea to keep in mind in the treatment of influenza is that of elimination, at least trying to help the patient to eliminate the toxins as rapidly as possible through the skin, the bowels and the kidneys, plenty of liquid, especially lemonade, should be given freely, but

there appears to be no special reason for restricting the diet, except the quality should be restricted to easily digested food, possibly the cough mixtures containing codeine, ammonium chloride, or the iodines may prove beneficial, and for the acidosis large doses of sodium bicarbonate has proven very valuable in my hands, the value of prophylactic vaccination against influenza and pneumonia has received a great deal of attention from the medical profession, and much effort has been expended in trying to find or perfect the right bacterial mixture which would prove successful in preventing the disease, but as yet no vaccine has been perfected that will really prevent and although thousands have been vaccinated with apparently some good results, the vaccination against influenza is still wholly in an experimental stage.

The proof for or against the efficiency of the various vaccines now on the market cannot be established in a short time, as the tendency of all acute respiratory diseases is to recovery. The vaccine must stand the test over a long period of time in the hands of those who are accustomed to the use of vaccine prevention, and who have not only an interest in collecting data, but also the ability to draw correct conclusions from the results obtained. Therefore, in the opinion of those best competent to judge, it appears that the final solution of the problem of influenza and pneumonia prevention, through vaccine, will have to await the coming of another epidemic.

I believe that anyone who has made a careful survey of the existing literature must be compelled to confess that we do not know what the cause of influenza is, while the influenza bacillus has been charged by a number of our best authorities as being the cause, yet this conviction has been seriously questioned by others just as competent observers, who hold an entirely different opinion, and even Pfeiffer himself, who first gave the etiology of influenza as being due to influenza bacillus, seems to be somewhat in doubt, and says there are a number of weak spots in the theory that influenza bacillus is the primary cause of influenza.

#### INDUSTRIAL PSYCHONEUROSIS\*

### ANTONIO D. YOUNG, M.D. OKLAHOMA CITY

No classification of functional nervous diseases following accidents and injuries has been entirely satisfactory and because of the conflicting opinions regarding the nature of these affections, it is not likely one will be found. Psychoneurosis is a general term that covers all forms of nervousness and the increasing litigation associated with this type of ailment has caused it to assume a very important place in medical jurisprudence.

Attorneys still adhere to the term traumatic neurosis, but I believe most physicians do not hold this phrase in good repute for the reason there is no definite functional nervous condition due to trauma that deserves the dignity of a clinical entity. All forms of nervousness associated with accident or injury are of the same types as those due to other causes and fall into one of the well known groups, as for instance, hysteria, neurasthenia or a combination of two or more members of these groups.

Therefore, I prefer the general designation of psychoneurosis without any attempt, in most instances, to a more specific diagnostic limitation.

The experience of medical officers in war time has furnished valuable information concerning psychoneurosis and the first fact established, is that almost never has severe physical wounds been associated with generalized functional nervous disorder. On the contrary, psychoneurosis is common in patients who have sustained none or only trivial physical trauma, but whose injury was associated with strain and stress or great emotional shock such as fear or grief. It is not only fear of physical danger that helps to precipitate the nervous attack, but distaste for the nature of the occupation or aversion to the environment, or resentment towards employers, or sense of failure may largely enter into the etiology. These psychical disturbances may be entirely unknown to the patient and thus not enter his consciousness.

As stated above, minor injuries sustained under great emotional or physical tension, may lead to severe functional ner-

\*Read before the Section of General Medicine, Oklahoma State Medical Association, Tulsa, May, 1928 vous disorder, as for instance, a trivial injury to the arm. Following such an injury, there is a brief period of natural "defense immobilization" even in the absence of a nerve, bone or muscle trauma. To some persons this circumstance may suggest a paralysis and be mentally elaborated to the fixed idea of permanent organic paralysis of the arm. All this without any conscious desire to malinger or exaggerate. Now, if in addition, a physician drops a hint that possibly the brachial plexua may be damaged, the patient is confirmed in his belief as to paralysis and the seeds of permanent invalidism have been sown.

The statement just made furnishes an opportunity to point out here the importance of having these patients seen early by a competent, level headed physician, who should make a thorough, painstaking examination, and without suggestion of any kind to the patient, arrive at a definite conclusion. In this way the patient will not be given a false idea as to the gravity of the trauma and may be prevented from needlessly becoming a parasite on the state.

Since my views have not changed in the last two years, I will quote extensively from a paper I read before the Southern Medical Association and which was printed in the Southern Medical Journal, Vol. XIX, No. 4, pages 266-267.

"The best therapeutic agent in the treatment of traumatic neurosis undoubtedly is return of the patient to regular work. The very nature of the agent producing the injury, with the accompanying circumstances and the mental processes involved, make this true."

Suppose, for example, that an employe received a slight trauma to the head or other part of the body, or his duties produce a muscular "strain", or he receives a "jerk" or "fall". He may or may not cease work immediately, but he afterwards remembers he was unconscious for a short while or at least "dazed".

He fails to return to work, notifies his employer he has been injured and says he has headaches, feels dizy, is easily exhausted and his heart palpitates and he "shakes" if he exerts himself. In addition he notes that he sweats easily and profusely and there may be weakness and numbness of a leg or arm. It is then that the mental process sets in that causes him to think he is seriously injured and deserving of compensation for an indefinite period, which may cause him to settle down

to a life of invalidism, although he is able to be up and about.

In contrast to this take a similar injury to a farmer or a person engaged in an occupation in which compensation is not a factor. No one ever heard of such prolonged disability in their cases following trifling injuries. Yet these trifling injuries are occurring every day in agricultural and non-compensated pursuits.

Common sense makes it apparent that there could be no lasting or serious injury in these cases because of the trifling nature of the agent producing the trauma. But when the family physician comes in following a trifling injury to a person eligible to compensation and makes a diagnosis of traumatic neurosis and the representative of the insurance carrier visits the patient and then another physician, designated by the Industrial Commission, or the insurance carrier, or the patient, is called in, there is no question in the mind of the patient that his condition is serious. Too many persons are interested in him. His case just has to be serious or so many would not be interested. Here is where the danger of chronic invalidism appears. The thing that the doctor and all interested should do is to get the patient back to work and disabuse his mind of the idea that he is in a serious condition.

Let him become thoroughly and honestly convinced that he is an invalid and he is lost as a producer, and the compensation is lost, and you and I, as members of society, pay the bill. There is no reason, if the patient is handled right, that he should not be an economic asset instead of a liability.

We physicians, too, are largely to blame. We have evolved a nomenclature ranging all the way from traumatic neurosis to split infinitives in endeavoring to establish minute and imaginary differences in types. If the claimant seems agitated, it is anxiety neurosis. If he is just tired, it is neurasthenia. As a matter of fact it is just nervousness and is not a disease at all. It is a condition, though, that is prolonged and sometimes initiated by repeated examinations and conflicts with claim adjusters.

Physicians deserve censure for these hair-splitting diagnosis. These differences often are merely technical and have no real significance, but the hearings for compensation are before laymen and not physicians and consequently these superfine diagnoses of types confuse the layman and give added importance to the case.

The physician should help the claim adjuster settle the case fairly, both to the claimant and the insurance carrier, but he certainly should get it adjusted as soon as possible and get the patient back to his regular occupation.

Claim adjusters have lost faith in human nature because of exorbitant demands of many accident victims and it is frequently the unenviable task of the physician to serve as a balance between these men and the claimants.

The physician should always bear in mind a circumstance which I believe to be a fact; these same claimants are not conscious malingerers, but firmly believe in their symptoms as narrated. Why shouldn't they? Haven't many persons shown great interest in their cases since their injury?

Claim adjusters should be men of the greatest possible tact and kindliness, whose aim should be conciliatory and not antagonistic, and for the good of both claimant and insurance carrier, they should endeavor to settle each claim in the shortest possible time after the injury and thus get the man back to work.

Failure to get the claim settled early, the display of so much interest, and use of the many and varied terms as diagnosis in these cases have made permanent invalids of numerous accident victims who really have nothing the matter with them.

I know one woman employe who was struck by a falling locker in the dressing room of an industrial plant, receiving nothing more than a "jar". She was not even pushed aside, but she has not worked for weeks. She is performing her household duties and drawing compensation nearly equal to her former wages.

This is a typical example of so-called traumatic neurosis. It is obviously unjust to the insurance company and certainly not good for the woman's morale.

Again, let me urge that the patient be gotten back into regular occupation at the earliest moment. Remember there are no long drawn-out cases of invalidism among farmers and others engaged in non-compensating occupations from this cause.

### THE CRIMINAL RESPONSIBILITY OF THE MENTALLY ILL

M. S. GREGORY, M.D. OKLAHOMA CITY

The psychiatrist does not excuse crime, he only tries to explain it. I make this statement by way of introduction because of the general belief that the psychiatrist is making a desperate effort to excuse crime. This idea as will be seen in this paper is entirely wrong.

During the past ten years two very important psychiatric surveys of prisoners have been made in the United States. The first survey to be considered is that of Dr. Bernard Glueck, psychiatrist, to Sing Sing prison, New York, in which 608 adult prisoners were carefully studied in an uninterrupted series of admissions to the prison. 66.8 per cent of those examined had shown throughout life a disposition to be asocial and to have difficulties in adjusting to ordinary life. A fairly large per cent of these prisoners had some type of classifiable mental disease, and in most cases the crime directly or indirectly attributable to the mental state. The other survey is that conducted under the direction of the National Committee for Mental Hygiene, whereby 1,288 prisoners in the jails of New York were subjected to careful psychiatric examinations. Of this number 77 per cent were found to have all the way from mild mental disorder to the severest mental deteriorations. The best of them had always had difficulties in adjusting to their environment while the worst types were frankly insane.

In this paper I will name a few of the commonest types of mental illness and the type of crimes which they may commit.

The first disease to be considered is kleptomania. Kleptomania is a compulsion neurosis in which the compulsion forces the victim of the neurosis into a certain type of stealing. This stealing is usually differentiated from the stealing of the ordinary thief by the fact that the kleptomaniac rarely steals that which has intrinsic value. But instead he usually steals that which has little or no value and his thefts are nearly always of the same articles. Most frequently it is a woman's undergarment, a gown, a handkerchief, a button or a lock of hair. These objects of

theft of the kleptomaniac have a powerful emotional (sex) value. After stealing the object he holds it to his breast or pelvis and receives his emotional stimulus and never again has that object any more value either emotionally or intrinsically considered. He hoards or hides the articles after receiving his emotional stimulus but never sells them. Not so with a common thief for he steals that which has an intrinsic value and converts it into money for his own use. The kleptomaniac is perfectly powerless in his compulsion to steal, no amount of persuasion or no amount of punishment will do the kleptomaniac any good because his stealing is the expression of a very serious and deep neurosis.

The second disease to be considered is the manic-depressive insanity. This disease is characterized usually by two phases, a high phase and a low phase. During the high phase or manic phase the individual thinks fast, he acts fast and is emotionally elated. His rapid thinking may assume that state commonly spoken of as "flights of ideas" in which flight the ideas come tumbling through the mind in a rapid and unsystematized fashion. While in this high phase, because of his excitement, flights of ideas and emotional elation he may commit crimes. While his crimes are usually of the minor types such as stealing, forging, and sex crime, yet, we find that he does quite frequently commit murder. In a study of 646 cases admitted to the Matteawan Criminal State Hospital of New York, showed that 2.9 per cent of the homicides living there were committed by the manic-depressives in a high phase. It is needless to say that while in a low phase the danger is not that of homicide, but rather that of suicide. In fact every manicdepressive either in a mixed phase or a low phase must be considered as a potential suicide.

The third type of disease to be considered is that of paresis or as classically known as general paralysis of the insane. This disease as commonly known is a syphilitic degeneration of the parenchymatous tissue of the brain. In this degeneration of the brain we find early and definite mental symptoms. In the early stages the conduct is usually impulsive and there is early shown a marked character change. In this character change there is marked loss of judgment and the power to conduct oneself in harmony with social customs. He frequently commits crimes of sexual nature. He frequently commits offenses against

<sup>\*</sup>Read before the Section of General Medicine, Oklahoma State Medical Association, Tulsa, May, 1928.

the life and person of little girls. He also may commit the most heinous crimes and a fair percentage of the homicides are committed by him. In the study of cases mentioned above at the Matteawan Hospital, the same percentage of homicide was committed by the paretic as that of the manicdepressive. Here we wish to say that whenever a man in the fourth or fifth decade of life commits a crime more or less serious, one should consider that we are in the presence of severe illness. And, any man in middle life who commits a sexual crime against children his spinal fluid should be taken at once as the diagnosis is likely to be made paresis.

The fourth group of the mentally ill to be considered is that of the psychopathic personality. This is a very large group and contributes heavily to criminal acts. The illness ranges all the way from a mild instability to severe illness. through the most of the cases belonging to this group can be seen trends which lead over into the groups of true insanities. The statistical manual published by the National Committee for Mental Hygiene says: "In fact all of the so-called constitutional psychoses, manic-depressive, dementia praecox, paranoia, psychoneuroses, etc., may be considered as arising on a basis of psychopathic inferiority." Also there are types of which one feels like saying that they are neither sick nor well, neither sane or insane. Yet this group furnishes a large percentage of the criminals, tramps, and moral perverts. They furnish 14.7 per cent of the homicides residing at the Matteawan Hospital at New York.

The fifth group to be considered in this discussion is the moron or high grade imbecile. This group is very large, there being probably a half million of them running at large in the United States. The moron as a class is always dangerous because of a low intellectual level of 12 years or less, being always coupled with a low emotional level, usually lower than the intellectual level, and because of this mental deficiency he commits a vast amount of crime. They are always the tools of more intellectual and vicious criminals. often steal, kill and commit heinous crimes at the suggestion of other criminals. They appear to be helpless in the hands of their baser cravings, and in the above mentioned study of homicides they furnish 17.6 per cent.

The sixth group to be considered is that of the epileptic. The epileptic is especially dangerous either preceding or following

an epileptic convulsion. He may also be very dangerous while in an "epileptic furor". His criminal acts may be committed during the dream states after the convulsion in which the patient to all appearances is perfectly normal. In such states he may appear to commit intelligently the most heinous crimes and yet following the acts has no memory of what has happened. The epileptic should always be looked upon as a very dangerous individual to run at large. He is nearly always potentially a criminal.

The last group to be considered is that of the dementia praecox or as is commonly called at the present time "schizophrenia". The word schizophrenia meaning a splitting of the mind: S. Sheldon Glueck, professor of Penology in Harvard University, says: "That dementia praecox exacts perhaps the heaviest toll from society of any of the psychoses. Its costs to the state, whether criminal or otherwise, is appalling." This disease leads to almost any conceivable crime. In the state of New York alone dementia praecox causes a loss, either directly or indirectly, of ten million dollars annually. One can do no better than to quote from Judge Olson of Chicago, in regard to the work done in his municipal laboratory, as quoted by Dr. Glueck as follows: "The judges send only suspected cases to the laboratory. Out of 779 cases in the boys' court, there were 654 suffering from dementia praecox, or about 84 per cent. In the moral court, out of 464 cases of females, 260 or 36 per cent, were dementia praecox. Out of 359 cases of males in the moral court, 107 were dementia praecox. Out of 657 cases of males in the domestic relations court, 236 were dementia praecox. In the outside criminal branches of 270 males, 107 were dementia praecox. Out of 152 females, 84 were dementia praecox. You will observe, therefore, that dementia praecox plays the highest role and is the criminal psychosis par excellence."

In dementia praecox there is always more or less "splitting of the psychic functions and the thought processes are controlled by groups of ideas (complexes), that have a strong emotional interest for the personality." (Bleuler) The emotional content appears to be split away from intelligence and thereby leaving the individual helpless as far as his conduct is concerned. In the above named study at Matteawan State Hospital 32.4 per cent of the homicides were committed by this group.

So much for the consideration of the various types of the insane which frequently are offenders. At this time I wish to make a plea for the early recognition, the early study and the early incarceration of the mentally ill. Every mild offender should be carefully studied before he is turned back upon society, and any young adult upon whom the diagnosis of dementia praecox can be placed should never be turned back upon society unless a Board of Psychiatrists has carefully examined him and pronounced him safe to be returned to society. What is said of dementia praecox may be said of other definite types of insanity.

Dr. S. Sheldon Glueck, Dr. Bernard Glueck and Dr. William A. White all feel that at least fifty per cent of the prisoners residing in penal institutions are there because of mental illness, and that being the case it behooves us to inquire into the mental status of every offender. I have no solution for criminality but when the time comes that a Board of Psychiatry will examine into the mental status of every individual found guilty of a felony, and if the criminal is afflicted with a serious mental disease, shall be shut up in a hospital and confined until he is well, we shall have taken a long step forward.

The states of New York and Michigan are operating under the Baumes Law, which law is especially designed for the protection of society. This law, among other things, commits a man to life imprisonment upon the fourth conviction of a felony. I herewith include a copy of the important section of that law as operating in Michigan at the present time:

"A person, who, after having been convicted within this state of a felony, or an attempt to commit a felony, or under the laws of any other state, government, or country, or a crime which if committed within this state would be a felony, commits any felony within this state is punishable upon conviction, as follows: If the subsequent felony is such that, upon a first conviction the offender would be punishable by imprisonment for any term less than his natural life, then such person must be sentenced to imprisonment for a term not less than one-half of the longest term nor more than one and one-half times the longest term prescribed for the first conviction of such offense.

"A person who, after having been twice convicted within this state of a felony or an attempt to commit a felony, or under the laws of any other states, governments or countries, of a crime which if committed within this state would be a felony, commits any felony within this state, is punishable upon conviction as follows: If the felony for which such offender is tried is such that upon the first conviction the offender would be punishable by imprisonment for any term less than his natural life, then such person must be sentenced to imprisonment for a term not less than the longest term nor more than twice the longest term prescribed by law for a first conviction of such offense.

"A person who, after having been three times convicted within this state, of felonies or attempts to commit felonies, or under the law of any other state, government or country of crimes which if committed within this state would be felonious, commits a felony within this state, must be sentenced upon conviction of such fourth or subsequent offense, to imprisonment in a state prison for the term of his natural life. Offenders sentenced under this and the last two preceding sections shall not be eligible to parole before the expiration of the minimum term fixed by the sentencing judge at the time of sentence without the written approval of the judge of such court or any judge of such court if the sentencing judge is not then serving. A person to be punishable under this and the last two preceding sections need not have been indicted and convicted as a previous offender in order to receive the increased punishment therein provided, but may be proceeded against as provided in the following section."

It is the conviction of the writer of this law that any criminal convicted four or more times is a confirmed criminal and should never be turned back upon society.

On the fifth day of this month of May, 1928, there were in the city jail of Oklahoma City, 68 prisoners. Of this number 13 were in this jail for the first time, and 50 of the 68 have been in this jail from four to 20 times during the past five years. Were the Baumes Law operating in this state these 50 repeaters would be sent to the state prison for life, and the crime of Oklahoma City would be thereby reduced. For the past 50 years England has been committing her third offenders to life imprisonment and thereby reducing crime to a minimum in the kingdom.

Once more I make a plea for the early recognition of the mentally ill and the confirmed criminal and to shut them up before they commit a major crime. Hickman gave warning for several years that he would commit major crime. Also Harrison Nole was in Belvue Hospital, New York City, for a short stay two years prior to the commission of his horrible crime. Both Hickman and Harrison Nole were diagnosed as dementia praecox, paranoid types. And, today's paper, May 5, 1928, contains the account of a praecox who, at Eldorado, Kansas, shot and killed his father and mother, five sisters and brothers; piled them up in a kitchen, covered them with kerosene and set fire and burned the house in an effort to destroy the bodies. This boy, for the past two or three years, was recognized by the neighbors as a dangerous eccentric.

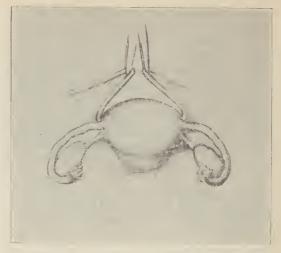
In conclusion I wish to repeat one of my first sentences in this paper and say that the *Psychiatrist does not attempt to excuse crime, but to explain crime,* and furthermore that the psychiatrists of America are doing everything in their power to recognize the potential criminal and shut him up and thereby protect society.

THE INTERSTITIAL TRANSPLANT OF THE ROUND LIGAMENTS FOR RESTORATION OF THE RETROVERTED UTERUS\*

McLain Rogers, M.D., F.A.C.S. CLINTON

With the multiplicity of methods of correcting retro-displacement and the diversity of opinion about the causation of this condition, is it any wonder that the mention of this subject is a signal for a "free for all?" When we find ourselves confronted by medical literature describing well past one hundred surgical procedures for correcting this one condition it is quite significant that we have not as a whole fully co-ordinated the causative factors with methods of procedure.

Much of the many sided discussions and presentations of this subject are attempts to justify an individual conception of correcting this condition without first considering properly the many factors contributing to our pathology.



-Drawing After Yeatman Wardlow

While it is not our purpose in this presentation to discuss the many causative factors of retrodisplacement, we, however, deem it proper to briefly discuss a few of the more generally accepted principles which should be considered when making a survey of the pelvis in anticipation of surgical interference for retrodisplacement. Nature evidently designed the horizontal position in the pelvis for the uterus with a rather wide excursion of movements in both the pregnant and non-pregnant uterus. All of such movements should occur with the uterus assuming in a degree this horizontal position,

Retroversion having occurred does not have a tendency to correct itself and retrodisplacement regardless of symptomatology is most undesirable. The infantile and undeveloped uterus, though retroverted, does not always give smyptoms, probably due in some decree to lack of nerve development and less weight of uterus itself. The retroversion of the infantile uterus does not often require surgical intervention and when surgery is employed often proves disappointing.

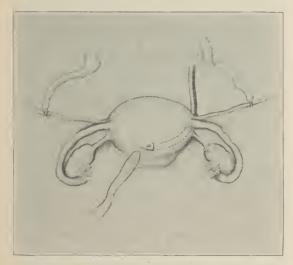
In surveying the pelvis with a view to restoring retro-displacement we should know the anchoring ligaments of the uterus are intact and if not they should be repaired before attempting restoration. In shortening the round ligaments by any method in which we may confidently expect a lasting support after correction we must not over-correct. Nature has allowed for the necessary displacement of the uterus and when too tightly fixed forward we may get unpleasant bladder symptoms, therefore we should allow for a compensa-

<sup>\*</sup>Read before the Section on Surgery and Gynecology, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1928.

tory displacement with distention of the bladder.

With the exception of hysteropexy most of the numerous operations are with the view that the excess in length of the overstretched ligament should be eliminated by excision or by looping. This view is obviously opposed to the fundamental surgical principle that the ideal treatment is that which restores it to the normal. The ideal treatment should be the restoration of the overstretched ligament to its original dimensions.

Assuming that associated pelvic conditions are favorable for correcting retrodisplacement of the uterus, it is a great relief to the surgeon if he can feel confident that he has a knowledge of and experience with a method that will give a lasting and uniformly good result.

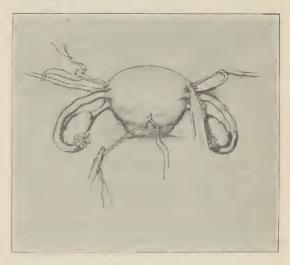


-Drawing After Yeatman Wardlow.

In 1921 we reported before this section the result of 32 cases of correction of retroversion by the interstitial transplant after the method of the late Dr. Yeatman Wardlow as first published by him in December, 1919, Surgery, Gynecology and Obstetrics. During the seven years intervening since our first report we have employed this method with very few exceptions with increasing favor and confidence and through a series of cases large enough to better base an opinion.

In facilitating the technique of this operation Dr. Wardlow devised an instrument which he designates as a "hysterotome," which consists of a blade of curvatures, length and other dimensions suited to make passage in curved directions through the uterine wall. It is fitted with cutting edges

at point only. While the shaft consists of a rounded dilating or non-cutting portion. Dr. Wardlow has three blades made in three sizes for various classes of cases and fitted with an interchangeable handle which permits of shifting of the direction of the blade at the convenience of the operator and to meet any necessity for variation in a given case.



-Drawing After Yeatman Wardlow.

#### STEPS OF THE OPERATION

After opening the abdomen and elevating uterus the round ligaments are caught by mouse tooth forceps at such point as will allow approximation directly backward on posterior surface of uterus and at this point on ligaments, apply catgut ligature by having a twelve-inch ligature with both ends threaded into eye of catgut needle and passing needle under round ligament, where forceps are applied, remove needle from suture and pass two ends through loop and tighten loop on ligament, applying hemostat forceps to distal ends of suture, repeat procedure on opposite ligament. Supporting uterus in one hand the hysterotome is inserted into the tissues at point of origin of round ligament on anterior surface of horn of uterus and rather to anterior margin of same. The instrument is now passed backward through uterine horn, just under interstitial portion of tube, keeping instrument beneath surface vessels at this point, and continuing its direction slightly downward, and inward through the uterine wall to a point in median line about one inch below the tip of the fundus uteri.

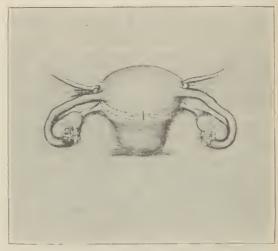
Here the point of the instrument is caused to emerge through small incision previously made through outer layer of uterine wall. The eye of instrument is now threaded, carrying loop back through passage as hysterotome is withdrawn. If before withdrawing the hysterotome, a mouse tooth forceps is applied to posterior portion of puncture wound, including tissue of round ligament, it will steady the uterus and facilitate work for the following steps. The ends of traction loop of ligament are now passed through loop extending through uterine passage and traction made, bringing traction loop of ligaments through interstitial passage. Now make traction on traction loop, pulling round ligament through passage and at same time push the fundus forward and slightly to side of engaging ligament, traction is continued until ligament is brought into view at distal end of passage on posterior surface of uterus. After repeating this procedure on opposite side, the end of traction loops are tied, approximating round ligaments which is closed with small catgut stitch.

If operation is neatly performed there should be no hemorrhage after completion, consequently no necessity for suturing puncture wound, but if, upon completion, there is hemorrhage, small catgut suture should be applied as control. If for any reason the tube is removed the point of puncture may be at this point, with the further technique as described above. As pointed out by Dr. Wardlow we utilize the muscular portion of ligament in loop carried through uterine passage and leave the strong tendinous portion as a sustaining medium.

Care should be used not to get the ligaments too tight, causing a constant pull and strain and subsequent pain, there being no necessity for over-correction in the use of this method to restore backward displacement. Good results following this operation depend to a greater degree upon neatness, kindly handling of tissues and small amount of trauma, than in most other pelvic operations. Dr. Wardlow reported a rather large series of pregnancies following this operation. All his cases (except two cases of confessed criminal abortions) went through pregnancy without complications and stood the ordeal of childbirth with no complications and no relapse to retro-displacement. The pregnancies which have occurred in patients whom we have operated have gone through pregnancy and childbirth with the same ease as those who had not had such operations.

#### ADVANTAGES

- 1. It is a proper anatomical adjustment giving better physiological results.
- 2. It utilizes the strong tendinous portion of the ligament as a sustaining medium and the weakened muscular portion is buried and lessens the danger of adhesions.
- 3. The portion of interstitial transplant being more muscular will take on the hypertrophic changes necessary for expansion in the pregnant uterus should this condition obtain.
- 4. Does not disturb the curve through nature's elastic ring at distal end of ligament.



-Drawing After Yeatman Wardlow.

5. Less liability to adhesions and consequently less symptomatology as sequella.

We do not believe this operation offers a disadvantage by being too technical as it is rather easy of application. As our experience has increased in the application of this operation we have grown more confident that it gives better results than any other method so far advanced.

### CONGENITAL DEFORMITIES

W. K. WEST, M.D. OKLAHOMA CITY

In our study of the statistics covering our examinations in the clinics, we find that congenital deformitiess are quite a common cause for children being crippled.

This type of deformity is best treated at an early age. The exact age depends upon the condition. But no matter what the condition is, the child should be examined at the earliest age possible. Those common deformities which are greatly aided by proper treatment, will be discussed in this paper.

Congenital Club Feet. Congenital club feet cause great disability and disfigurement, if left untreated. But the treatment must be instituted immediately after birth in order to get the maximum improvement. There have been many cases examined in which they have been told by their own physician that it is better to wait until the child begins to walk before treatment be instituted. This advice is injurious to the child, because the normal development of the bone and the soft parts will be only attained by early corrections and retention of the foot in a normal position. For example, where only one foot is involved, it is very important to correct the deformity within the first few weeks if possible, in order that the foot will grow as rapidly as the normal one. In those cases, several years old, we find that after correction the affected foot is smaller than the other foot. This is especially disfiguring in a girl. Looking at it from another standpoint, limited motion of the joints in the ankle and foot is more noticeable in the older, untreated cases, even though the correction has been made and normal weight bearing line obtained. Statistics taken from hospitals that do this type of work indicate that the club feet that have been treated by manipulation and plaster casts from the start show a greater improvement than those who have been operated on. The reason for that is that the manipulation and mechanical retention is sufficient for the child a few weeks or a few months old. In children less than two months old, a slight correction is made without pain, only using the force of the hand while a light plaster boot is applied. These boots should always extend above the knee with the knee at a right angle. Otherwise, they will be kicked off by the child. The force used in correcting the deformity is to gently improve both the equinus and varus These plaster boots are tendencies. changed every two weeks at first, and the time of change is increased when the child grows older.

Older children, beginning at the end of the second year, necessitates some opertive measure. It is impossible to treat a child six or seven years old without division of the contracting tendons and fasciae. And in that type of case in the teens it is advisable to remove some bone, either by a typical arthrodesis or by a cuneiform osteotomy. All cases of club feet should wear plaster casts many months and walk on them, as they maintain proper position of the feet night and day and the walking will help develop the structure in the feet. After the casts are removed, braces are fitted which hold the feet in the proper position as long as necessary. There is a great tendency to recurrence of the old deformity. This type of work requires very little hospitalization. Practically all the cases can be treated in the office, except a few days following the operation, in case one is necessary.

The earlier the child is properly treated, the more satisfactory the end-results, and in the neglected cases, the longer the length of treatment, the more hospitalization, and the less perfect the *end*-result.

Congenital Dislocation of the Hip. This is the only congenital deformity in which the diagnosis is not easily made at the time of the growth of the child. In the majority of cases, if only one hip is dislocated, the mother will notice the difference in the length of the legs. But when both hips are out of place, the child may be old enough to walk but is not able to walk. The child will then be brought to the family physician to find out the cause for this failure to walk at the normal age. At this time, it should be remembered that the hips are up and back of the hip joint socket, and when the child stands erect it causes the spine to be hyper-extended, and a typical lumbar lordosis with a prominent abdomen and very prominent buttocks. If the child has learned to walk in spite of the dislocated hip, which they always do, they have a very typical gait and that is known as the "waddling gait".

In any suspected case of dislocation of the hip, an x-ray should be advised and the diagnosis is very easily made.

It is impractical to try to reduce these dislocations until the child is between three and five years of age, because it is necessary to apply a plaster hip spica for maintenance of reduction for many months. For that reason it is best to wait until this cast can be kept in good condition. From the age of five on, the prognosis is less favorable. However, a reduction should be attempted in the older children. Open operations are necessary some times, but unnecessary when the child can be treated at the most favorable age.

The treatment consists of manipulation and closed reduction under general anesthetic, after the head of the femur has been replaced the leg is fixed in a plaster spica in a position of mid-flexion and complete abduction with knee at right angles. This position is commonly called the "frog leg" position. It is necessary to maintain this position for several months during which time the leg is gradually pulled down to the normal position. Children stand this treatment very well, and with proper nursing come through without any danger whatever.

Congenital Torticollis. This deformity is easily recognized at birth. It is a contraction of the muscles on one side of the neck, but usually the sterno-mastoid muscle is the chief offender. In the untreated cases, this contraction results in a lateral curvature of the cervical vertebrae. It also causes a flattening on one side of the head, as the child grows older. As soon as the child starts to school, it reads with difficulty because of the difference in level of the eyes and in order to get those eyes in position for reading, the spine is curved lower down in a typical compensatory manner. Therefore, it is very important to correct this deformity as early as it is possible, because in the older patients after the muscles have been cared for the bones have developed in an abnormal manner and a further treatment of the curvature of the spine is necessary. This deformity causes a terrific disfigurement.

The treatment consists of manual manipulation of the neck muscles from the time the child is born, but it isn't feasible to do the slight operation necessary for relief of muscle contraction until the child is three years old. This operation is done under a general anesthetic, a small incision being made over the medial aspect of the clavicle. The attachments of the sterno mastoid muscle are divided. It is necessary to use great care in this area, because of the proximity of the jugular vein. The child is then put to bed for forty-eight hours, with only a bandage protection. At the end of that time, any sickness which has resulted from the anesthetic has subsided. The child is then placed in a suspension apparatus and a plaster cast is applied over the head, neck and upper body with the head in over correction. This cast is changed every few weeks but some type of mechanical apparatus worn for several months. This treatment is not dangerous and the results are very gratifying.

Obstetrical Paralysis. This is not a true congenital deformity, being an injury to the arm and shoulder at the time the child is born. Part of the nerves making up the brachial plexus are pulled apart by tension and as a result of this nerve division the child has a partial paralysis of the arm. If the child is left untreated, a typical contracted arm will result, and there is only partial return to the power in the arm. However, the nerves do grow back together in most cases, and there is some power in all muscle groups but it takes several months for this type of nerve injury to heal. But during this time, the contraction resulting from the loss of proper muscle balance becomes so fixed that it is necessary to do an open operation to free them, and then the result is only helpful. On the other hand, if the child is treated immediately after birth by some type of abduction apparatus, in which the arm is held in abduction and extreme external rotation, the child will make a splendid recovery after the normal nerve impulses reappear.

#### SUMMARY

This is a report of average results obtained in the care of crippled children of the type disabled because of congenital deformity. There is no other kind of case which is more greatly benefitted with so little danger.

#### INTRAVENOUS MEDICATION\*

### C. R. HUCKABAY, M.D. VALLIANT

The transfusion of alien blood for therapeutic purposes and the intravenous injection of medicines had their scientific origin in the 17th century, but for ages before that time the idea had been present in the minds of those who carried on the medical tradition.

Ancient History. Allusions in the fragments of Egyptian history which have come down to us indicate that even this ancient people had some knowledge of inintravenous therapy. There also existed a copy of an ancient Hebrew manuscript which read:

"Naam, leader of the armies of Ben-Adad, King of Syria, afflicted with leprosy, consulted physicians who, in order to

<sup>\*</sup>Read before the Semi-Annual Session of the Southern Oklahoma Medical Association at Mc-Alester, June 20 ,1928.

cure him, drew out the blood from his veins and put in that of another."

There are various references along similar lines, until, in the writings of Labavius, published in 1615, we find a passage translated by Brown as follows:

"Let there be a young man, robust, full of spirituous blood, and also an old man, thin, emaciated, his strength exhausted, hardly able to retain his own soul. Let the performer of the operation have two silver tubes fitting into each other. Let him open the artery of the young man and fit into it one of the tubes, fastening it in. Let him immediately after open the artery of the old man, and put the female tube into it, and then, the two tubes being joined together, the hot and spirituous blood of the young man will pour into the old one's as if it were from a fountain of life, and all of his weakness will be dispelled.

"Now, in order that the young man may not suffer from weakness, to him are to be given good care and food, but to the Doctor, hellebore."

Brown adds that he "cannot imagine why the Medicus should need hellebore, but perhaps it was on the principle that a veratrum cock-tail might reduce his blood pressure after his exciting experiment."

No rational application of transfusion or intravenous medication could have been possible, however, before the year 1613. Then is when Wm. Harvey announced his discovery of the circulation of the blood. The possibility of giving medicine by mixing with the blood streams probably coexisted from the beginning with the idea of transfusion.

The first definite record of any such attempt is related by Robt. Boyle, a celebrated physicist and chemist of the 17th century who stated that the suggestion of intravenous medicine was made to him, not by a physician, but by an architect, no other that Sir Christopher Wrenn, the builder of London's St. Paul's Cathedral.

Both French and German historians also advance claims as being the first to practice transfusion. Their claims are based on reputed operations performed about the same time as those of Wren.

*Early History*. In the early history of intravenous medicine, we find such drugs as scammony and resin of jalap were injected in the attempt to cure syphilis.

Hale, of Boston, in 1814, injected him-

self with oleum ricini and survived the experiment. Bacelli, in 1890, used quinine intravenously in the treatment of malaria and Landerer, in 1892, injected sodium cinnamate and balsam of Peru for tuberculosis. Gauntier injected sodium caccodylate for pernicious anemia in 1897, while Crede employed silver salts to overcome infections in 1901.

It would seem that the introduction of the hypodermic needle in 1845 would have hastened the general adoption of intravenous therapy, but such was not the case. It marked an epoch since it resulted in the administration of drugs by means other than the mouth, yet for years the hypodermic syringe was an emergency treatment.

Physicians to whom direct medication suggested itself failed to introduce the needle of the syringe into the vein and thus make it possible to inject drugs directly into the blood streams.

Then came the discovery and announcement of salvarsan or Arsphenamine by Ehrlich. His work brough about the deep injections of drugs into the tissues which in turn developed into introduction of the remedy into the vein. As soon as medical men began to appreciate the fact that arsenical compounds could be intravenously injected, the idea suggested itself that the same method could be employed to place other drugs directly into the circulation. But, the intravenous route did not quickly become practicable. Unpleasant reactions which followed the administration of the arsenicals were ascribed to the fact that the remedy was placed directly into the blood stream and not to faulty technic. Critics jumped to the conclusion that the method itself was dangerous and unsuitable except in the hands of any but an expert. The ancient bugaboo of the danger of injecting air into the vein was emphasized. But by these very facts scientific curosity was aroused.

Investigations were carried on to learn the nature and causes of such reactions and vitally significant facts were brought to light. It was found and demonstrated that the majority of unpleasant and dangerous reactions could be ascribed, not to the placing of the remedy directly into the blood stream, but to the practices accompanying the method employed. The volume of the solutions injected at the time were entirely too large.

It was also found that some reactions were the results of using water which was distilled and therefore thought to be sterile but which, on investigation, proved to be water contaminated with albuminoid ammonia or other products of fungus growth. These were demonstrated to often exist in the very still used for the preparation of the water. Unfortunately, the importance of a properly prepared water is not yet fully appreciated by some doctors.

It also came to be realized that the preparation of solutions for intravenous use calls for special knowledge and special pains. The exceptional care required in their production at once removes intravenous solutions from the class of products that can be prepared on the spur of the moment.

Present Status. The practical results of study, experimentation and research which followed these difficulties lead to their correction. Under present conditions, intravenous therapy when properly indicated is practical, safe and has superiorities over any other method of drug administration. This statement may be proved by results. The general circumstances whose presence in my opinion call for the intravenous mode of administration are these.

- 1. When need for rapidity of therapeutic action is required.
- 2. When the greater necessity and positiveness of direct medicine is desired.
- 3. When chemical changes of the drugs by the digestive apparatus is to be avoided.
- 4. When gastric disturbance is encountered by the same drugs given per mouth.

In fact the field is so wide seemingly there is no limit or bounds to its usefulness. As we all know, where we administer medicines by mouth or rectum there is a lack of confidence as to just what this medicament is going to accomplish.

Quite different to intravenous medication, there is a feeling of security of confidence of what your results will be, when you have started your treatment.

Specifics. The question of specific medication has resulted in the development of many very valuable medicines and serums and not wholly to the medicines, but to their purity and mode of administration.

As to anti-diphtheritic serum, we will have to admit that it comes as near being

a specific as anything we have, and too, we will have to admit that it is much more effective put in the vein than intramuscularly or subcutaneously.

Salvarsan. Another great advent, was the bringing forth of salvarsan and its twin sister neosalvarsan. They are lauded as near a specific as anything our profession commands to date, yet they are less than a quarter century in existence. All this being true they would be of no avail if it was not for intravenous administration and as we all know there has been great improvement in their administration. Today the cross roads doctor can give the neosalvarsan in 10 to 20 cc. instead of the original pint, pust as effectually as the most skilled.

Quinine. This great old medicine has stood the test, took its place in the ranks and file almost since man was. Has been given for more ailments, for lack of something else to give than all others combined. And at that it has not betrayed our confidence. It will come nearer curing everything than any one medicine. At the present time in my hands it comes nearer being a specific in pneumania than anything I have resorted to. Doubtless you have all received literature from Merck Co. regarding pneumoquine. The base is quinine and they claim to cure pneumonia in three or four days with this preparation.

Heart. The great majority of you men will throw up your hands when it comes to giving quinine intravenously, as you are afraid of weak hearts. Singer and Winterberg state that quinine was formerly much used in the treatment of cardiac affections, but in modern times has been over looked. Winterberg states that quinine dihydrochloride 5 to 10 grains in 10 to 20 cc. of distilled water will control a functional tacchycardia quicker than any other medicament. Wenchenbeck unqualifyingly supports the proof provided by Winterberg as to the efficiency of quinine intravenously in various heart lesions, obtained in extensive clinical tests.

My Experience. During the last three years I have treated various diseases almost exclusively by intravenous route, with very satisfactory results. Have given over 3,000 shots in last thirty months. Given over 1,200 intravenous shots of quinine dihydrochloride and quinine dihydrobromide.

Diseases Treated. Pneumonia over 100 cases in three seasons, over 50 winter of

1928. I mean lobar pneumonia. 1 per cent mortum, average time of crisis is 72 hours, if uncomplicated. Malaria almost innumerable, as you understand that I live within six miles of Red River and the same distance from Little River. Six cases of malarial hematuria last fall. Pellegra, near 30 cases. Rheumatism over 30 cases. Arteriosclerosis over 30 cases. Cardio-vascular-renal five cases. Gonorrhea 30 to 40 cases. Mastitis four cases. Puerperal eclampsia two cases. Tetanus one case.

Pneumonia, First case, John Love, 21 years old, December 24, 1926, a cook. Was found unconscious. Three doctors, including myself, first diagnosed appendicitis. There was so much adominal rigidity. After two narcotic hypos he expectorated characteristic brick dust sputum. Examination of thorax revealed lobar pneumonia in both lower lobes. At 5 P. M., December 24, 1926, temp. 100, pulse 160, almost imperceptible. Gave 15 gr. quinine dihydrochloride at 5 P. M. At 9 P. M. temp. 104, pulse 140. At 9 A. M, December 25, 1926, temp. 101, pulse 120. Gave 15 gr. quinine dihydrochloride. At 9 P.M. temp. 100, pulse 110. At 9 A. M., December 26, 1926, temp. 97, pulse 70, profuse sweating. Left lung resolved sixth day of disease. Right resolved seventh day, and was in town the ninth day.

Pneumonia. Fourteenth case. Mrs. Mason, 79 years old. Had flu supposedly for five days. At 11 P. M. fifth day I saw her. Temp. 104, delirious, consolidation both lower lobes. Gave her 15 gr. quinine dihydrochloride intravenously. Eleven hours later I gave her 15 gr. quinine intravenously, and at this time temp. 102, pulse very weak. Next day temp. 96, pulse 68. Lungs still solid. Gave 32 gr. sodi iodide and 3-4 gr. guiacal and 3-4 gr. creosote each day for three days and dismissed her. She is still living.

Pneumonia. Nineteenth case. R. W. Wilson, 33 years old, ferryman and fisherman on Red River. Saw him fourth day of disease; fever 105, very sick, vomiting abundance of very green bile., pain was so great in right side had to give 1-4 gr. morphine. Right middle and lower lobe very solid and he was very icteric. Gave him 15 grs. quinine dihydrochloride intravenously, never saw him again until the seventh day; temp. 104, very delirious, very yellow, still vomiting very green, more like skimmings of molasses. Under the bed was a gallon molasses bucket half full of very bloody urine.

Malarial heraturia complicating. The outlook was anything but promising. Figured that I could not hurt a dead man. Gave 15 gr. quinine dihydrochloride intravenously; in twenty-five minutes gave 32 gr. sodi iodide, 3-4 creosote and 3-4 guiacal in other arm. Saw him in 24 hours; temp. 96, pulse 70; smoking a cigarette when I went in his tent.

Asthma. Boy 14 years old. Had it since five years old. Was under Dr. C.'s care. Gave adrenlin chloride from once to three times monthly, 5 to 10 m. and Dovers powder until it lost its effect. Was brought to me almost suffocated. Asked me to give adrenlin as other doctor was out of town. Gave him 32 gr. sodi iodide, 5-8 creosote and 5-8 gr. guiacal—gave immediate relief. Gave same every other and every third day until given six doses. After fifth dose his bronchiolis resolved and he expectorated an abundance of fibrinous matter that looked more like spaghetti than anything else. This was April, 1926. Had slight attack in July, 1927; I gave one dose as above, otherwise had no further occurance; he has almost doubled in weight.

Flu. Near 100 cases this season. One to two doses of 10 grs. quinine dihydrochloride in 20 cc. doses clears it in 6 to 36 hours. Average 12 hours. The higher the fever the better quinine acts and has less reaction.

Pellegra. I use Martin's treatment, of Hot Springs.

Aortic Regurgitation. E. J. R. Systolic 90 diastolic nil, 66 years old, atrophic, Brought up to 110 and 60. John Abbott, 18 years old, systol 85 diastolic nil, hypertrophy and dilated. Brought up to 110 and 70. Three other cases systolic 90, diastolic 30. Treatment of all were the same. As they all had chronic malaria. Gave 7 1-2 grs. quinine dihydrochloride and 15 grs. sodi caccodylate every other day until gave three doses. Then every third day 15 grs. sodi caccodylate until three doses. Those with hypertrophy gave 31 grs. sodi salicylate every other day, for three doses. The salcylate will pull those hearts down better than anything else in my hands.

Conclusion. According to my mind, intravenous therapy has proven its value as a prominent factor which mush be taken into consideration when deciding upon a method of treatment. It is a scientific direct, accurate and dependable therapeutic measure.

The use of the Luer syringe has replaced the once lauded gravity method and has been the means whereby of illustrating that accurately and scientifically prepared solutions, in more concentrated forms, in smaller volume are the outstanding important factor in achieving successful results in intravenous therapy.

#### SOME CASE REPORTS RODENT ULCER. LYMPHOSARCOMA. CARCINOMA

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#### L. C. KUYRKENDALL, M.D. MCALESTER

My tribe (Eye, Ear, Nose and Throat men) being in the minority in this Society, I was at a loss as to what kind of paper to prepare that would be of interest to the greatest number. I thought possibly of selecting a subject in my line wherein I might give you something deep and intricate, but dismissed it for fear I might bore you and you think I was trying to show you how smart I really am. I realize you know practically as much about eye, ear, nose and throat as I, but possibly do not do as much or come in contact with as much of it as we who are doing that work exclusively, consequently, this paper deals with three cases, either of which any of you might have in your practice. I am not reporting these cases because of anything unusual I did, but for your discussion, and that I may learn of your experiences with like or similar conditions. I invite free and frank discussion.

One case recovered: the other two did not.

#### CASE No. 1

Mrs. J. A. B., age 40, married, housewife. On February 16, 1927, Dr. J. C. Schlicht called me to see the above named lady.

Present Complaint. About two weeks ago noticed a small "pimple" on her tongue which was near the median line but more on the left than right side. Her throat got sore that evening. The next day the "pimple" had turned black and was gradually spreading out and getting larger around with extreme pain and tenderness upon swallowing or eating, the pain being practically entirely confined to the tongue.

The pain gradually increased until pa-

tient is now (two weeks later) unable to swallow anything because of the pain in her tongue and throat. She complains of her jaw being stiff and the tongue so thick that speech is difficult. She has no other symptoms.

Past and Family History. Is negative except for an attack of rheumatism eight months ago in both lower extremities only. She has been taking treatment for this and is better, but is compelled to use one crutch in order to get around.

Examination. The patient is a very slender woman, weighing approximately 100 pounds. She has an anxious expression of the face and evidence of extreme pain and is constantly wiping saliva and expectorating. Temperature 99, pulse 96. The skin of face is very dry and scaly, same is true of scalp. The cervical glands, anterior and posterior, both sides, are palpable. There is no enlargement or swelling of neck. The breath is very offensive, and the patient opens the mouth with difficulty. Eyes, ears and nose nor-There is in the median line of the tongue, but extending more to the right than left side, a flat greyish-white necrotic elevation about 5 mm. above the surface of the tongue and about 25 mm. in diameter. The anterior edge of the elevation is free and pus is seen exuding from beneath. Upon raising this mass from the tongue it appears to be six or eight mm. in thickness and attached only at the posterior aspect. The pus is yellowish in color, serosanguinous in nature and very offensive. When this pus is wiped away there appears guite an excavation with the floor very irregular, showing numerous elevations of granulation tissue.

I used some hydrogen peroxide to clean the ulcer and applied some 20 per cent argyrol solution to it. I did not wish to do anything except in a palliative way until I could get the pathologist out to see her.

February 17, 1927. This redundent necrotic tissue was cut away, smears and cultures made and tissue examined as per report. After wiping all pus out of the cavity, I applied pure chromic acid to the base and edges of the ulcer.

Dr. Schlicht visited her each day and reported favorable progress in the case. On February 26, 1927, Dr. Schlicht reported the excavation had entirely filled in and that the patient was doing her own work about the house and in the yard. Still con-

<sup>\*</sup>Read before the Southeast Oklahoma Medical Association, at Atoka, December 12, 1928.

tinues to use a mouth wash of potassium chlorate and occasionly some hydrogen peroxide.

February 28, 1927, came to the office and I find the ulcer entirely healed and filled out.

Pathologist's Report February 28, 1927. Urine examination, negative.

Laboratory Report. Patient Mrs. J. A. B. Dr. Kuyrkendall. February 18, 1927. Specimen of smears from tongue. Diagnosis and findings: dark field negative, smear with India ink, negative; cultures; no growth on agar-agar. Culture on blood media; positive Gram's positive cocci which are a form of streptococci.—W. J. DELL.

Tissue Report. Patient, Mrs. J. A. B. Dr. Kuyrkendall. Date, February 18, 1927 Tissue from tongue, color greyish. Consistency firm. Dimensions, 2x6x8 mm. Gross pathology and anatomy; grossly, this specimen consists of a flat-like mass of tissue, showing papillae of the tongue on one surface, while the reverse side shows a hemorrhagic irregular tissue. Microscopical pathology and histology. Sections from this specimen shows almost complete destruction of the epithelial layer, a marked round cell infiltration with inflammatory changes. From this tissue, I have made several slides and am unable to find any evidence of malignant change. There is every evidence of a marked inflammatory change, but no evidence of a classified tumor of any type.

*Diagnosis*. Inflammatory changes in tissue from tongue.

J. L. LATTIMORE, M.D.

Diagnosis. Rodent ulcer of tongue, streptococcic in origin.

#### CASE No. 2.

J. L. S., age 64, farmer-stockman. This man came to see me April 26, 1927, because of his eyes. I have seen "freaks" in the side-shows but never have I seen as grotesque character as this man. His wife (age 22) led and supported him into my office as he was unable to see his way around.

Present Complaint. Up until about two weeks ago he was able to see his way around and could see well how to write and read. Since that time he has not been able to see distinctly. At present can only tell daylight from dark. Says his eyes water so much he thinks that interferes with his vision. Complains of a "scum" over the

eyes. The protruding of the eyes is of recent origin, neither he nor his wife being able to recall just when this started.

About 18 months ago noticed the gland (parotid) in front of right ear was swollen—was not tender or sore. Gradually all of the glands of the head, neck and face began to swell until today each gland is greatly enlarged. Says the axillary and inguinal glands are also swollen. He does not know how much he has lost in weight, but has lost a great deal, and his appetite is poor.

During the last 18 months at different times, he has been under the care of the following physicians: Drs. L. J. George, Stuart, Oklahoma, T. H. McCarley, C. M. Pearce and C. J. Brunson of McAlester.

He says he took four "shots" from Dr. Brunson, but that they did not do him any good.

(Later) I am informed the patient had a four-plus positive Wassermann, and was informed by Dr. Pearce he would either take treatment for his condition or go to jail. He was trying to get the County to treat him free, while he was by no means indigent.

Examination. The orbital contents on the right side are protruding from the cavity and are about the size of a tennis ball. The left is slightly smaller. The corneae are dry, due to the lids not closing. The conjunctiva is inflamed and thickened with the blood vessels engorged. Lachrymation is pronounced. He is able to make out hand movements only at six inches. The ophthalmascope shows an optic atrophy on both sides with the blood vessels distended and very tortuous.

There are two lymphatic glands over the frontal bone and extending outward and backward over the temporal bone that have the appearance and feel of a "mammoth Georgia goober" having been placed under the skin. This is on both sides and are exactly alike. From the lower edge of the glands on either side and extending downward there is similar enlargement in direct proportion to the size of the glands involved. These extend under the chin forming a collar so that his head has the appearance of a very fat Poland China hog. The swelling did not intefere with swallowing or eating.

The axillary glands on both sides are as large as hens eggs. The epitrochlear glands are enlarged and feel like a large "buck-shot."

The inguinal glands are as large as pigeon eggs and are very prominent, due to the emaciated condition of this man.

The mental condition is very poor, consequently it is hard to elicit information or treat him.

He refuses to give his family or personal history. The present wife is his second and he her third husband.

On may 7, 1927, I obtained a specimen from the parotid gland on the right side and sent it to the pathologist whose report was received on May 9, 1927, and was as follows:

May 8, 1927. Specimen of glandular tissue 10 mm. by 6 mm. by 8 mm.

There is marked infiltration of tissue with large round cells.

Diagnosis—lymphosarcoma.

I then advised him to take a series of x-ray exposures, and he was referred to Dr. J. C. Johnston.

He took a treatment on May 9, 1927. A few days later came in for another, but as it was not time for his treatment, and in order to satisfy him Dr. Johnston gave him a treatment with the high frequency. I am informed by Dr. Johnston he did not again return for treatment.

I did not again see him until about five weeks later when a patient in Albert Pike Hospital and under Dr. McCarley's care for diarrhoea. At that time the orbital contents were down to normal and the glands on the forehead were not visible (his exposure had been over this area alone) and he claimed to be able to see very good, in that he said he could see me standing at the foot of his bed.

I did not again see this man, but learned he died in August, 1927.

#### CASE No. 3.

Mrs. W. F. E., age 34, married, housewife. This lady first came to see me on February 2, 1928, being referred by Dr. J. A. Eubanks of Indianola, because of a persistent sore throat.

Present Complaint. For the last year has had more or less persistent sore throat and cough, there being times when she was entirely free while at others both were rather severe, but would usually subside in a few days under ordinary home remedies. The last two weeks the throat had been

very sore and cough pronounced. Has been under Dr. J. A. Eubanks' care during that time. Says it is very painful to swallow and feels like there is a lump in the throat that will neither come up or go down. The cough is worse when lying down and feels like it is cutting her throat each time she coughs. Thinks her tonsils are the sole cause of her trouble.

Family History. Measles, mumps and whooping cough in childhood. In 1922 had an abortion and was in the hospital for a week. In 1925 had left breast amputated at Mayo's. Says Drs. Watson and Pemberton of McAlester, wished to do a radical operation on her breast, having made a diagnosis of malignancy, but that some friends advised her to go to Mayo's, which she did. They amputated the breast under local anaesthetic and told her it was not malignant (patient's statement). Had had no further trouble until about one year ago as above noted. Is the mother of seven living, healthy children. Is between four and five months pregnant at present time.

Father died at 61 of pneumonia, mother at 57 from appendicitis, two brothers living and in good health, three sisters living and in good health. Husband living and in good health.

Examination. The woman has an anxious expression and is compelled to swallow often. With the act of deglutition she grabs her throat on either side with her hands and shows by facial expression intense pain. Immediately afterwards she has a fit of coughing which lasts several seconds. She does not raise any mucus when she coughs, but as soon as the coughing stops she tries to clear her throat, but the mucus is ropy, thick and very tenaceous.

The eyes and ears are normal She has a chronic catarrhal rhinitis of both sides. The anterior and posterior cervical glands are easily palpable.

The tongue is heavily "coated" and the breath is very foul. The faucial tonsils are atrophied and there is no evidence of any disturbance or pus in them. The teeth and gums are clean and in good condition

Using the laryngeal mirror a mass about 18 mm. in diameter is seen in the pharynx attached to the pharyngeal wall opposite the level of the epiglottis. This mass is round and has a large basal attachment and is not movable. It is pearly grey in color and shows numerous blood vessels coursing across it.

The axillary lmyph glands are only slightly enlarged.

She then visited Dr. J. A. Munn to consult him relative to an anesthetic for the purpose of obtaining a specimen of this growth for examination, she would not submit without a general anesthetic. Dr. Munn reported involvement of each lung and advised a stay of 48 hours in hospital before an anesthetic was given her so that the routine laboratory tests might be run and he be able to examine her after that period of rest; she would not go to the hospital. I next saw her on February 24, 1928 (seventeen days later). She was not improved and said that she felt worse than on her first visit. An examination of her throat showed no change except of the mass in the lower pharynx which instead of being round had changed to crescent in shape. She looked as though she had lost some weight in the meantime and was very tired. Local applications were made to this mass and she was placed on liquid diet. She then visited me as follows: March 9, 10, 11, 12, 16, 17, 19, 20, 21, 23, 30, and April 10, 18, gradually getting weaker and the mass getting slightly larger and the inflammatory changes gradually extending upward and involving the tonsils, pillars, soft and hard palate as well as the gums and tongue. At no time did this tissue ever bleed but was covered with a milky white exudate and was very hard to wipe away. On April 18, her condition had become such that she could hardly walk from weakness and exhaustion so was placed in the Albert Pike Hospital.

For about one month before entering the hospital her pain had been so intense she was compelled to eat aspirin tablets in order to swallow water or take her nourishment.

I had her using different mouth washes and taking K. I. on suspicion although the Wassermann was negative

Within thirty minutes after she entered the hospital she had to take 5 grains of aspirin, because of the pain Her temperature was 99, pulse 86, and respirations 20.

Dr. Munn took charge of the general care while I devoted my time and attention to the throat only.

Urine examination April 20, showed nothing out of the ordinary. Blood was haemoglobin 78, leucocytes 6,500, poly's 62 large, lymphocytes 7 small, lymphocytes 29,

eosinophiles 1 1-2, basophiles 1-2, other cells none.

She was then in the hospital until April 27, 1928, at which time she was apparently slightly improved and was allowed to go home. Between April 18, and April 27, her temperature ranged from 98 1-5 to of 100 2-5, respiration from 18 to 28. She was given aspirin, a cough mixture containing terpin hydrate, a mouth wash, Hinkle pills, vericolate tablets, sodi bicarbonate, castor oil and codeine sulph.

This lady again entered Albert Pike Hospital on May 3, 1928, with a temperature of 100 2-5, pulse 122 and respirations 38. Four hours later the reading was 100-110-24.

On May 4, 1928, urine was as follows: acid, sp. gr. 1018, albumen x, no sugar, acetone x, diacetic acid x, no bile, indican, bacteria, crystals or casts, pus 3 per field, blood 5 per field.

May 9, 1928, Sp. gr. 1021, albumen xxx, acetone xx, diacetic acid xxx, pus 20 per field, blood 30 per field, and 2 hyaline casts per field.

Examination on May 7, 1928, revealed the condition of her mouth and throat worse than when allowed to go home on April 27. She gradually got weaker and weaker with greater inability to open her mouth and more intense pain. The entire laryngo-pharynx and oro-pharynx were involved in the process, including tonsils, soft palate and base of tongue as well as gums. She was confined on May 8, 1928, at 5:30 A. M., giving birth to a girl weighing 3 pounds and 6 ounces.

Her temperature ranged from 103 at 9 P. M. on May 10, 1928, to 96 4-5 at 8 A. M. on May 6, 1928, the pulse ranging from 100 to 150.

Toward the last it was necessary to keep her constantly under morphine in order to keep her comfortable at all, that with local applications in the mouth and throat with her using a mouth wash was the only medication.

She died at 5.45 A. M., May 16, 1928.

*Diagnosis*. Carcinoma, pharynx complicated by pulmonary Tb. and pregnancy with confinement.

I have left out all reference to the treatment as administered by Dr. J. C. Johnston and will ask that he and Dr. J. A. Munn open the discussion on this case.

CASE OF SPIRILLOSIS\* (Rat Bite Fever)

JOHN S. PINE, M.D. QLLAHOMA CITY

Family History. May Higgins, girl age ten years, weight 50 1-2 pounds, previous health good; parents living, in good health. No incidents in family history affecting the present case.

History of Present Illness. Child was bitten by a rat on the end of third finger of the right hand on August 31, 1928. Mother applied mercurochrome and the wound healed promptly. About September 10, child began to complain of illness. About September 12, parents observed erythematous and purplish macules scattered over the trunk, limbs and face. Child was brought to my office on September 13.

Examination. September 13. Multiple erythematous and bluish-red macules over entire body were noted. Axillary glands are enlarged and on right side they are tender and sore. No red streaks connecting the bite with the lympth glands. Child complained of aching and pain in the right arm and legs. Appears tired, listless and has loss of appetite. Pulse is 120 and temperature 103. Tongue has a yellowishbrown coating; bowels are constipated. Skin moist with perspiration and kidney action scant and highly colored. There is a beginning atrophy of entire muscle structure of the right arm. I solicited Dr. E. S. Lain's assistance to make a diagnosis on account of the peculiar condition of the skin, but it seemed new to him. Diagnosis not made. It resembled relapsing fever, septicemia, bubonic plague.

Relapsing fever eliminated by new symptoms of atrophy of right arm and condition and appearance of skin, this in septicemia; lymph glands not general, only axillary; also skin symptoms.

Bubonic plague—onset sudden; white incubation of this was two weeks; petechial rash; this large macular bluish-red from 1 to 10 centimeters in diameter; respiratory symptoms in this case negative.

Symptoms. September 18. Blotches had faded though the skin over entire body was dry and itching. Feet and hands were swollen; temperature was normal; pulse 102. Mother reports rise of temperature at night. Child appears to be much depressed and losing strength.

September 28. Lymph glands slightly smaller; are not so tender; size of arm has probably gained, though is not using it. Skin is still dry with superficial ulcers over feet and legs; still has marked degree of malaise; is constipated; has pain in the legs and feet with evening rise of temperature. I now prescribed a bitter tonic with laxative.

October 13. About once a week she would have two or three days of sharp rise of temperature which would disappear following a heavy sweat. Child was presented at the Skin Clinic of the State Dermatological Association held at the State University Medical School. At this time, the skin was very dry with branny exfoliation over entire body; the hands and soles have a horny, fissured condition with thick, dry scales; child was still pale and sallow; has evening rise of temperature followed by sweats; she still complains of pain in the lower limbs; is weak, appetite is irregular, though bowels not so obstinate. After an examination by Dr. Richard L. Sutton of Kansas City, he at once made a diagnosis of "spirillosis" or rat-bite fever and advised administration of neoarsephenamine which he reported had been found to be specific for such infections. One dose usually sufficient. Laboratory at University Hospital secured sample of her blood for test, but found they did not have the required stains to find the spirochaeta morsus muris, viz: Giemsa's stain or Burri's India ink. And the dark field would only likely detect during one of the relapses. Child returned home, and on October 15, 2 grams of neo-arsephenamine were given intra-muscularly; also a bitter tonic consisting of cascara, nux vomica and comp. Tr. gention and essence cariod prescribed. For two days following administration of neo-arsephanamine, child complained of some slight nausea though the temperature began to subside within a few hours. Marked improvement in her general condition was plainly observed by the parents.

October 27. Examination shows a marked improvement in every respect, viz: appetite is normally strong, depression has disappeared, child has become vivacious. Branny exfoliation of the body has almost disappeared excepting over palms and soles where fissuring still appears where the horny epidermis is thicker. All pains and discomfort in the muscles and joints have disappeared. Atrophy in right arm is now not perceptible. Briefly, immediately after the administration of neoarsephenamine improvement began and has continued uninterruptedly. Soothing cold creams were now prescribed to aid in restoring the skin to its normal elasticity and softness,

November 4. Expoliation of hands and feet has disappeared and deep fissures healed. Child now able to wear her shoes, and appears normal again.

#### PNEUMOCOCCUS MENINGITIS

Joseph Harkavy, New York (Journal A. M. A., Feb. 25, 1928), reports the case of a woman, aged 57, who recovered from pneumococcus meningitis with serum therapy. He believes that from a survey of the literature it is difficult to state definitely that any one method of treatment is the method par excellence, nor does the experience acquired in one case justify any broad generalization. Yet his own clinical observations and those of others would lead one to the following conclusions: The early diagnosis and the identification of the invading organisms is of supreme im-Specific serum therapy employed should be definitely potent and should be promptly instituted. The serum should reach all foci of infection in the subarachnoid space. Where adhesions are suspected it should be administered intracisternally as well as intraspinally. Drainage of the cerebrospinal fluid by both routes is an essential aid. During the course of illness the following features of note presented themselves: Sterilization of the cerebrospinal fluid after the first injection of Felton's serum. Development of a temporary block in the lumbar region probably due to adhesions, resulting in a dry tap. Reinfection characterized by a rise in temperature and by the recovery of pneumococcus type 1 from the cisternal fluid. Introduction of serum intracisternally with prompt sterilization of the cerebrosspinal fluid. Cultures from the subsequent specimens of fluid obtained by daily lumbar puncture did not yield organisms. Occurrence of serum sickness on the fourteenth day of the illness. Negative results of two blood cultures taken during the course of the illness.

### MEDICAL AND PHARMACEUTICAL CO-OPERATION

Perhaps one of the outstanding reasons for the progress in he scientific development of new products has been the spirit of cooperation which has existed between the medical profession and the pharmaceutical industry.

By this close cooperation medical science has contributed to pharmaceutical progress and the manufacturing pharmacists of the country in turn have made a definite contribution toward the development of new medicinal products.

On Wednesday, December 5, the officials and members of the medical, pharmaceutical and allied professions of Lafayette, Indiana, were addressed by Dr. Charles E. Vanderkleed, Chairman of the Contract Committee, of the American Pharmaceutical Manufacturers' Association.

The subject of Dr. Vanderkleed's address was "Improvement in the Quality of American Drug Products Due to Cooperation in the Industry." It is interesting to see the representatives of the

several allied professions making arrangements for a periodical study of mutual interests of professional nature with a view to increasing mutual usefulness.

It is only through medical and pharmaceutical cooperation that the greatest advances can be made in conquering disease and improving the health of the American people.

### A NEW MEDIUM FOR GALL BLADDER RADIOGRAPHY

Tetraiodophenolphthalein in colloidal suspension is the latest development for visualization of the gall bladder.. The use of this medium was described by Dr. Bernard Fantus in the J. A. M. A. of July 16, 1927.

As the result of subsequent research, colloidal tetraiodophenolphthalein is now available in a form stable toward the gastric juice and readily absorbable from the intestine. The dose containing grams of dye is given in a glass of water. Experiments covering a long period have shown that tetraiodophenolphthalein administered in this colloidal form, normally gives a distinct cholecystogram within twelve hours. It is claimed that the possibility of non-visualization is reduced to a minimum and that nausea, laxative action, or other discomforts are seldom encountered. In this new colloidal form, the chemical will be known as Chole-cysto-col and will be marketed by the Abbott Laboratories, North Chicago, Illinois.

### CIRCUMSTANCES THAT INFLUENCE THE OBTAINING OF NECROPSIES

E. T. Bell, Minneapolis (Journal A. M. A., March 24, 1927, reports that during 1927, 1,353 necropsies were performed by the department of pathology of the University of Minnesota. With the deduction of 123 stillbirths, this represents 19 per cent of the deaths in Minneapolis for that year. The most important factor in increasing the number of postmortems is to get physicians deeply interested. This can be accomplished by a competent pathologist who is familiar with the problems of clinical diagnosis and able to teach. No postmortem service will be successful if it is in charge of a poorly trained pathologist. The administrative agencies of the hospitals can secure a fair percentage of postmortems if they really try to do so. Public sentiment in favor of necropsies can be built up in a community if a majority of the physicians cooperate. If undertakers are given helpful and considerate treatment, the great majority will not object to postmortem examinations. The sex of the deceased does not affect the securing of a necropsy up to the age of 30 years; but after this age it is somewhat easier to obtain permission in men.

### CANCER OF ABDOMEN AND PELVIC CAVITIES

The immediate results obtained in the series of cases reported by Isaac Levin, New York (Journal A. M. A., Jan. 28, 1928), indicate that an intraperitoneal insertion of capillaries of radon can be performed in the course of an exploratory laparotomy, or in the course of an exploratory laparotomy plus palliative surgery of any type, without adding to the hazzard of the operation and at the same time causing, in a number of cases, a shrinkage of the tumor growth and subsequent prolongation of life and comfort.

### THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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#### EDITORIAL

#### THE COST OF MEDICAL CARE

This is a message to some of the doctors in Oklahoma, and it is an extremely important one. The American Medical Association at this time is mailing a list of more than 25,000 physicians, selected at random, a questionnaire, requesting the furnishing of certain data pertaining to the invested capital involved in physicians' education, intern training, post-graduate courses, office and traveling equipment, office maintenance, medical society affiliations, library maintenance and medical licensure fees.

This is a survey of the profession, by the profession, and for the benefit of the profession. Every physician is urged to give serious and thoughtful consideration of this matter to the end that complete and reliable data will be given on the several items involved.

You are requested to please, by all means, refrain from ignoring the question-naire should it reach your hands.

### APPENDICITIS: ITS FALLING MORTALITY RATE

Occasionally the reading public is more or less shocked to read of the death, after a short illness, due to appendicitis, of some well known celebrity. Two men\*, internationally in the public eye, who have so recently passed in that manner, causes the physician and surgeon to reflect and ponder whether or not these were preventable deaths, for it will be recalled that it was almost an axiom of the late Dr. John B. Murphy that someone was to blame in every case of the appendix going so far as to rupture or to become gangrenous. No doubt this is true, but today the mass of the medical profession may be properly absolved from responsibility in such cases. Not many cases of appendicitis are overlooked by up-to-date physicians today, but despite early and proper diagnosis the human element enters to frustrate and oppose the very best advice, which, if followed, would reduce the case to one of simplicity. In the case of one of the celebrites, at least, it is known that he disregarded advice to undergo an operation and had repeated attacks handled by simple, abortive, but non-curative means. It is well known that no disease of the abdomen is so promptly destructive to life as the case of acute appendicitis, in which, if operation is not promptly and skillfully performed, or the case in which it is reluctantly consented to and performed during the greatest virulency of infection, or when performed too late, in the face of fulminating and rapidly spreading infection. A recent review of acute appendicitis which considers advances in treatment during the last ten years and the possible progress for the ensuing ten years (Bancroft)\*, is decidedly optimistic and promises continued improvement. Bancroft's figures on the mortality in acute appendicitis were as follows:

		Mortality	
	Cases	Deaths	Per Ct.
Without adjacent peritoneal			
reaction	246	2	0.8
With free fluid	127	5	3.9
Acute diffuse peritonitis	73	15	17.8
Abscess	133	5	3.7

Morbidity has concurrently been reduced and there has been a decrease in postopertive hernia and drainage cases due to suturing the peritoneum about the drain and leaving the remainder of the wound wide open but loosely packed with vaselin gauze. Where formerly 15 per cent postoperative hernia occurred in drainage cases, these were reduced to 3 per cent following the procedure above outlined.

Another advance, and all modern surgeons instantly agree that this is a life-saving procedure, is that of the early performance of jejunostomy for either mechanical or paralytic ileus, this being particularly so in paralytic ileus.

A third important step is the very free use of hypertonic saline solution intravenously or subcutaneously in cases where obstruction occurs. It is noted that there has not been much change in the mortality in cases of peritonitis or wide spread abscess.

The factors entering into lessened mortality are:

- 1. Earlier detection and diagnosis of appendicitis and prompt reference for operation.
- 2. Improved anesthesia. There is no doubt but what the vomiting which formerly followed the administration of ether was a factor in the disetribution of infection. Now, with ethylene, gas and oxygen, and the various forms of local and regional anesthesia this need not be considered more than a negligible danger.
- 3. The Levin tube. This small tube, similar to a duodenal tube is easily inserted into the stomach or duodenum, and through this, large quantities of fluids may be introduced and syphoned out. This will almost eliminate vomiting, yet the patient is abundantly supplied with fluids.
- 4. Postural drainage through the most dependent portion is superior to any other type; the usual tube drainage through the operative incision, soon fails to function.
- 5. Hypertonic saline in the presence of ileus and repeated transfusions in the presence of sepsis will help the patient overcome toxemia, and should be more generally adopted.

Finally, in summing up the question as to responsibility. This is a divided one. First, the responsibility lies with the attending physician, and regardless of his supposed training or lack of it, he is still responsible and should be able to almost certainly place his finger upon the point of trouble and not only advise but emphatically demand immediate operation. If this is done he may be absolved of responsibility for what may result in a tragic ending.

\*Rudolph Valentino. Tex Rickard.

\*\*Frederic W. Bancroft, M.D., Surgical Clinics of North America, October, 1928.

#### Editorial Notes - Personal and General

DR. W. T. TILLY, Muskogee, has been confined to his home with illness for some time.

DR. J. E. McDONALD and MISS CATHERINE MITCHELL were married in Tulsa, January 2, 1929.

THE OKLAHOMA DERMATOLOGICAL SO-CIETY will meet at the Morningside Hospital January 26, 1929.

DR. and MRS. S. C. SHEPARD, Tulsa, announce the birth of a daughter, Charlotte Margaret, December 28.

DR. O. C. KLASS, Muskogee, who has been ill for some time, is now able to be out and has resumed his practice.

DR. J. L. DAY, Norman, was elected vice president of the Medical Reserve Officers Association meeting in Shawnee in December.

DR. and MRS. CHARLES R. HUME, Anadarko, left December 30, for Los Angeles, California, where they will spend about three months.

Drs. J. M. Byrum and H. G. Campbell, Shawnee, announce the opening of an emergency hospital at St. Oklahoma. Dr. William Fox will be in charge.

CADDO COUNTY MEDICAL SOCIETY met December 14, at Anadarko, and elected the following officers: Drs. E. W. Hawkins, president; C. R. Hume, secretary-treasurer.

TULSA ACADEMY OF MEDICINE had as its guest of honor January 16, Dr. Chas. C. Dennie, Kansas City. After a dinner at the Hotel Mayo, Dr. Dennie read a paper on "Neurosyphilis in Children."

KAY COUNTY MEDICAL SOCIETY elected the following officers for 1929: Drs. J. C. Wagner, Ponca City, president; Merl Clift, Blackwell, vice president; A. C. Kramer, Ponca City, secretary-treasurer; O. H. Gowey, Newkirk, censor.

LINCOLN COUNTY MEDICAL SOCIETY met at Chandler, December 20, and elected the following officers: Drs. J. W. Adams, president; Levi Murray, vice president; J. M. Hancock, secretary; U. E. Nickell, delegate; W. B. Davis, J. S. Rollins and A. M. Marshall, censors.

PUSHMATAHA COUNTY MEDICAL SOCIETY met in Antlers, December 5, and elected the following officers for 1929: Drs. D. W. Connally, president; J. A. Burnett, secretary; E. S. Patterson, delegate; Geo. B. Colby, vice president; H. C. Johnson, John S. Lawson and John Kilpatrick, board of censors.

OTTAWA COUNTY MEDICAL SOCIETY met December 3, at the Miami Baptist Hospital, electing the following officers for 1929: Dr. C. A. McClelland, president; Dr. L. W. Trout, Afton, vice president; Dr. A. M. Cooter, second vice president; Dr. B. F. Ralston, third vice president; Dr. J. W. Craig, secretary-treasurer.

WASHINGTON COUNTY MEDICAL SOCIE-TY elected the following officers at their meeting December 18: Drs. G. V. Dorsheimer, Dewey, president; B. F. Stover, Bartlesville, vice president; J. W. Athey, Bartlesville, secretary-treasurer. Drs. H. C. Weber and J. V. Athey were selected as delegates to the State Convention.

OKLAHOMA COUNTY MEDICAL SOCIETY elected the following officers December 22: Drs. John F. Kuhn, president; J. T. Martin, vice president; R. L. Murdoch, secretary-treasurer. The following doctors were elected as delegates to the State Convention from Oklahoma county: Drs. A. B. Chase, R. L. Murdoch, J. F. Kuhn, E. S. Ferguson, E. D. McBride, W. W. Rucks, L. J. Moorman, L. J. Starry and E. S. Lain.

TULSA COUNTY MEDICAL SOCIETY was the guest of the staff of the Oklahoma Hospital January 14. Dr. S. C. Venable read a paper on "The Role of the Pathologist in Malarial Infections." Tulsa County installed the following officers for 1929: Dr. C. T. Hendershot, president; J. Franklin Gorrell, President-elect; Henry Browne, vice president; Mary Edna Sippel, secretary-treasurer. The president appointed a committee on Membership, Welfare, Legislative and Public Health, Publicity and Public Relations and Social and Entertainment.

PITTSBURG COUNTY MEDICAL SOCIETY, meeting at McAlester December 21, elected the following officers: J. A. Munn, president; J. A. Barton, vice president; F. L. Watson, secretary; F. J. Baum, censor for three years; O. W. Rice, delegate; Wm. C. Wait, alternate, all of McAlester. Prior to the meeting the attending physicians were the guests of the Albert Pike Hospital, participating in a very enjoyable banquet. The speaker of the evening was Dr. Pat Fite, Muskogee, who gave a lantern slide illustration and talk on "Gall Bladder Visualization."

MUSKOGEE COUNTY MEDICAL SOCIETY elected Drs. R. N. Holcombe, president; S. E. Mitchell, vice president; A. L. Stocks, secretary-treasurer, and I. C. Wolfe, censor. The next meeting will be held at U. S. Veterans' Hospital, February 11. About forty physicians were present. Dr. H. A. Scott reported a case of eclampsia, complicated by an intercurrent attack of erysipelas, and later delivery without incident. Dr. I. C. Wolfe reported a severe case of pyone-phrosis complicating pregnancy, apparently temporarily cleared by the use of mercurochrome intravenously. Dr. S. D. Neely presented two clinical cases: one of dermatitis exfoliative and one of psoriasis, both of severe intractable type.

OKMULGEE COUNTY MEDICAL SOCIETY elected for 1929 the following officers: Drs. L. B. Torrence president; J. A. Milroy vice president; M. B. Glismann, secretary, all of Okmulgee. Censor, Dr. J. A. Robinson, Henryetta. The officers announced that for January 18 at 7 P. M. a dinner would be served at the Hotel Belmont after which the members, including many invited from adjacent counties, would hear Dr. John Osborne Polak of Brooklyn, one of the distiguished obstetricians.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION was organized in December at Duncan. The officers were Drs. A. J. Weedn, president, and J. W. Nieweg, secretary-treasurer. A vice president from each of the ten counties included in the organization was selected as follows: Cotton, Dr. W. C. Alexander, Temple; Stephens, Dr. D. Long, Duncan; Garvin, Dr. Logan Maysville; Grady, Dr. A. B. Leeds, Chickasha; Caddo, Dr. E. W. Hawkins, Anadarko; Jefferson, Dr. W. M. Browning, Waurika; Comanche, Dr. E. B. Dunlap, Lawton; Murray, Dr. W. H. Williamson, Sulphur. Carter county was included but no vice president has yet been selected.

CARTER COUNTY MEDICAL SOCIETY meeting at Ardmore, January 8, elected Drs. J. C. Best, president; T J. Jackson, vice president; F. A. Harrison, secretary-treasurer. Delegates to the State meeting, Drs. W. C. Sain and R. C. Sullivan; alternates, Drs. Walter Hardy and F. P. vonKeller. Dr. J. C. McNeese was appointed censor to succeed Dr. J. W. Shelton. Dr. J. C. McNeese reported cases of influenza and pyletus, discussed by Dr. J. W. Shelton. Dr. T. J. Jackson read a paper on the serum treatment of pneumonia with pneumococcus antigen. Walter M. Johnson reported cases treated with pneumoquin. Dr. G. E. Johnson reported on observation and result of the use of autogenous serum at Base Hospital 63 A. E. F. Dr. John L. Dorrough, full-time county health officer, was called upon to define the scope of his duties to the County Society. Dr. Dorrough explained that he was not allowed to practice medicine, that his work was 95 to 100 per cent preventative and rural sanitation; that he made charity calls at all times when other work would permit, but that his office was not for the practice of medicine. His greatest problem seemed to be the large number of venereal infections passed to him for treatment.

#### DR. THOMAS AUGUSTUS BLAYLOCK

Dr. T. A. Blaylock, pioneer Madill physician, died in a Sherman, Texas, hospital January 10, following a car accident several days previous. Dr. Blaylock was apparently improving from pneumonia which followed his injury when his heart, weakened by the strain, gave way.

Dr. Blaylock was born at Springfield, Illinois, November 29, 1871. He received his preliminary education in the common schools. He graduated from the medical department of St. Louis University in May, 1902. His state certificate was issued to him in 1904.

Dr. Blaylock is survived by his wife and one son, two sisters and a brother.

Dr. Blaylock was a Rotarian, Odd Fellow, Mason and Shriner.

#### TUBERCULOSIS

Edited By L. J. Moorman, M.D. and Floyd Moorman, M.D 912 Medical Arts Bldg., Oklahoma City

What is Clinical Tuberculosis? F. M. Pottenger, M. D., Am. Rev. of Tb., November, 1928.

Acute infection such as measles, whooping cough, diphtheria and small pox, as a rule, give only one phase of activity during the life of an individual. The causative microorganism enters the body, produces an infection which stimulates the immunity mechanism of the host and the conflict is ended. If the immunity mechanism is competent, the casuative microorganism is destroyed, the individual is victor, and except in rare instances, he is thereafter protected against further disease caused by that particular microorgan-

Tuberculosis, unlike acute infections, is caused by a germ which is protected against the defensive forces of the organism by a waxy envelope, but also permeates its body, thereby making it very resistant to both humoral and cellular defense on the part of the host. It becomes buried and incarcerated in the tissues instead of being destroyed; consequently, once infected may mean, and probably does mean, in most instances, always infected. Always infected, however, this must not be confused with the idea of always suffering from tuberculosis, for the two conditions are entirely different.

The phenomena attendant upon an acute infection are those of (1) reception of the causative germs, (2) their multiplication, (3) stimulation of the immunity mechanism of the host, and (4) the death or recovery of the host with a resultant lasting immunity if the immunity response is competent to cope with the infection. The phenomena attendant upon a tuberculous disease are different. Tuberculosis is not a single episode of infection, bodily reaction, immunity and healing, or failure of immunity and death, but a succession of inoculations met by a succession of responses until the clinical healing of death occurs. These episodes may be repeated at frequent intervals or be One imstretched out over months and years. portant cause of difference is the inability of the host to rid himself of the infecting tubercle bacilli, and to develop anything more than a relative immunity. Another factor is that the competence of this immunity fluctuates.

A few children die of their first infection before specific resistance has been established, but the majority survive this and may secure a permanent healing.

Tuberculosis as we meet it most commonly, and particularly in the adult, is a succession of the episodes which make up the picture of acute infection, plus the particular modifications which are injected by the fact that the infection takes place in a host, whose tissues already have been endowed with the power to specifically defend him against the invasion of tubercle bacilli.

Active clinical tuberculosis is likely to be a succession of reinoculations with immunity responses. The exception to this is when the disease heals at once after reinoculation occurs, which is the thing most desired but not regularly attained.

The prognosis in tuberculosis is bound up closely with these reinoculations. The frequency with which they occur, the numbers and virulence of the bacilli causing them, and the resistance of the patient at the time the reinoculation takes place

are three factors which largely determine the course of the disease. The immunity mechanism is set in motion by an infection produced by living tubercle bacilli and to a lesser degree by dead bacilli and possibly to minimal extent, by tuber-culo-protein; but for an efficient protective res-ponse living bacilli are necessary for the primary inoculation. After the mechanism has been set in motion and immunity has once been established then either living bacilli, dead bacilli or tubercu-lo-protein will stimulate it further and increase its efficiency.

Immunes, as compared with the noninfected, show the following important phenomena: (1) a quickening and increased power to destroy invading tubercle bacilli, (2) an immediate inflammatory response which tends to confine the invading bacilli at the point where they lodge in the tissues, and (3) a secondary inflammatory and exudative response in unhealed foci elsewhere in the body, produced by the tuberculo-protein which results from the destruction of bacilli at the site of attempted implantation, escaping from the focus and circulating in the blood streams, and which, coming in contact with the cells in unhealed tubercles, cause a defensive inflammatory reaction to be thrown about them. This defensive force destroys many bacilli and exerts a general restraining action on others, preventing them from spreading in case they should get beyond the walls which have confined them; and further stimulates the healing of tubercles.

We can observe in the course of clinical tuberculosis, either on physical examination, or by the x-ray, if our plates are satisfactory in quality and are taken sufficiently often, that many rein-oculations occur without implantation resulting. In such instances of abortive infection the bacilli are destroyed.

With the specific inflamatory response well established it is probable, judging from our clinical observation, that small and even large reinoculating doses of bacilli rarely produce permanent disease. They are opposed by immediate inflamatory response on the part of the local cells, and after a time, are destroyed or walled in and rendered inocuous. In the process, however, they serve the host well by building up his immunity and also by causing secondary reactions in unhealed foci elsewhere in the body, thus favoring their healing by fibrosis or resolution.

The power to resist the process of tubercle bacilli through the tissues, which is conferred upon the cells of the host by a prior infection with tubercle bacilli, is one of the most important facts in the specific protective mechanism.

That all tissues of the body have conferred upon them, as a result of a prior tuberculosis infection, a power to react to tuberculo-protein when they come in intimate contact with it, and that this quality is possessed the strongest by those cells which make up the intimate structure of the tubercle, are facts of primary importance in ridding the host of tuberculous infection. This affinity between bacillary protein and the highly sensitized cells in the tubercle is so strong that a reaction occurs whenever they come in contact. No effect is noted in other cells of the body unless the bacillary substance is introduced directly into the tissues as by intracutaneous or subcutaneous injection, in which case it is held in close contact with the cells for some time.
Only large and repeated reinoculations, which

depress or overcome the patient's immunity, for

the time being, are responsible for such a calamity. This we see in the rapid spread that occurs during the last few weeks of life. We also see it in instances in which the patient's general resistance is very low. As long as the patient's immunity is relatively high "autotuberculin" reactions are curative and not harmful.

Parenteral Quinine Therapy With Observations on its Effect in Pulmonary Tuberculosis. Harland F. Newton and Kurt Heine, American Review of Tuberculosis, November, 1928.

Transpulmin a sterile solution of basic quinine and camphor in other oils, each cc. containing 0.03 gm, aubydrous basic quinine and 0.025 gm. of camphor was used in forty selected cases of pulmonary tuberculosis, uncomplicated by recognizable tuberculous faci elsewhere in the body.

All patients had remained at rest in bed for at least one to two months. During this time routine sanatorium treatment was carried out, so that each patient had established a clinical "level" of improvement.

Transpulmin was then given intragluteally 2 cc. daily for three to five weeks. None of the patients experienced any local pain or irritation from the injections.

In twenty-eight patients, all chiefly productive cases of pulmonary tuberculosis, the drug seemed to produce favorable effects. The maximum temperature showed a steady decline of 2 degrees Fahrenheit in 12 to 14 days, the patients often becoming afebrile. Irritating unproductive cough present in more than two-thirds of the cases, was relieved in 13 to 16 days. In the patients with productive cough for five to eight days after treatment the sputum increased slightly, and then showed a steady decline. At the end of four to five weeks there was no appreciaable expectoration, and all but two patients were "bacillus-free." None lost weight, and the average gain was 7.5 pounds. There was a decrease of physical signs on frequent examination of the chest.

Roentgen examination, at the end of five weeks, also showed improvement proportional to the severity of the preexisting tuberculosis.

The remaining 12 patients showed a productive cirrhatic type of lesion, with slight elevation of temperature and daily expectoration of about 15 cc. Here, treatment with old tuberculin, was given with transpulmin, after the latter alone, for three weeks, had shown little or no effect. The tuberculin was given every fourth day, intracutaneously, beginning with 0.2-0.4 cc. of a 1-0.000,01 solution, and increasing the amount and strength of the tuberculin with injections. Transpulmin treatment was the same 2 cc. daily intragluteally. Coincidently, tuberculin therapy alone was given to twelve patients, all having, as nearly as possible, the same type of pulmonary tuberculosis.

Tuberculin combined with transpulmin definitely caused a more rapid improvement than when tuberculin alone was given. This was shown by an afebrile temperature, the sputum becoming in all cases scanty and "bacilli-free," gain in weight and active signs in the chest diminishing.

Climate in the Treatment of Pulmonary Tuberculosis. James Alexander Miller, American Review of Tuberculosis, November, 1928.

The author cites the opinion of physicians from Hippicrates up to the present time as to climate in the treatment of tuberculosis, and gives the advantages and disadvantages of various sections of the United States, with a summary of results obtained in 1028 cases who received treatment in the North, West, South, Southwest and at home, with the following conclusions:

The similarity of results obtained, both immediately and after the lapse of several years, appears to leave no escape from the conclusion that, at least, where there is a similar basis for the selection of the locality and when this basic is employed by the same physician, practically identical results may be expected in each locality.

The regime of regulated rest and exercise, proper food and open air life, is the fundamental essential in the treatment of tuberculosis. Competent medical advice and supervision are essential. There is no universally ideal climate. For each patient there may well be a most favorable environment, if we are wise enough to find it.

The X-Ray Evidence of Allergy and Clinical Phthsiogenesis, I. Rappaport, M. D., American Review of Tuberculosis, November, 1928

The successful invasion of the pulmonary parenchyma as a result of contact infection brings about a focus-formation, and surrounding it, a perifocal infilteration as a local manifestation of allergy. This is the lesion first revealed on the x-ray plate by Wessler as from 1 cm. to 1 inch in size, its site predilection being the infraclavicular region.

Only about 5 per cent of these initial infiltrations were found behind the clavicle or in the real apices. The initial infiltrations go unnoticed by the patient until the allergic phenomena are local. They are therefore discovered accidently or when looked for in people living together with open contact cases. With slight invasions the allergic phenomena may remain restricted altogether to the place of invasion, the focus healing, perifocal infiltration being absorbed and the patient feeling nothing more than some passing indisposition.

With moderately extensive foci and larger perifocal infiltrations, allergic phenonema become general in the form of toxic shock, rise in temperature, malaise, etc. Several invasions lead to general symptoms not unlike pneumonia.

The Fate of the Tuberculous Cavity. Felix Baum, Sol Mebel and Allen Kane, American Review of Tuberculosis, November, 1928.

The authors say we may differentiate between two types of cavities, one caseous and the other pyoid. They call cavities with a ragged and irregular contour sequestrum cavities and conclude that this type of cavity is more likely to occur in the first allergic stage. The other is called concentric and is formed from lesions of the exudative type, which were ultimately converted into liquifaction necrosis. On the sputum of such cavities we rarely find tubercle bacilli although the sputum may be loaded with elastic fibers.

We are dealing here with typical cold abscesses, in which the tubercle bacilli are destroyed by leucocytes and enzymes. This type of cavity is more likely to be found in the second allergic stage. By the shape of cavities and the thickness of their walls we may be able to determine the allergic stage in which they are formed. The fate of the cavity depends upon the stage of its formation. The kind of tuberculosis resulting in liquifaction necrosis is more readily absorbed. There is a difference between the healing and the repair of a cavity. The latter occurs in the third stage, in which the cavity is collapsed and masked

by thickened pleura. Healing takes place in the first two stages by connective tissue replacing the destroyed parenchyma. It is possible that healing can occur through the regeneration of parenchy-

Infraclavicular cavities, because of their location and the stage in which they are usually formed, show a strong tendency of spontaneous heal-

Three conditions are essential in the repair of lesions in any organ. These are as follows:

The lesion must be aseptic.
 There must be drainage.

3. The tissues must be in apposition.

Four cases are reported in which cavities disappeared. --0--

#### UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D. 1010 Medical Arts Building, Oklahoma City,

#### **CLIPPINGS**

#### From

#### THE UROLOGIC AND CUTANEOUS REVIEW

A urethral fistula cannot be closed if a stricture lies in front of it.

That syphilis may be transmitted through the semen is well established.

After forty years of age few patients have perfectly functioning kidneys.

It cannot be depended upon that a diseased kidney is necessarily palpable.

Be suspicious of a pyuria which clears up abruptly. It may be a blocked pyonephrosis.

When you discover albumen in the urine, always find out what medicine the patient has been taking.

Boil all catheters, ureteral and silk woven included, even though their lives are thereby short-

The first essential for genito-urinary surgery is to learn to pass instruments gently as well as skillfully.

Warm solutions of an anesthetic are more efficient than cold solutions for anesthetizing the urethra.

Syphilis in medical men, following accidental inoculation, in many instances runs an unusually severe course.

When you have an instrument in the urethra, always know where its tip is, and how much pressure is on the tip.

A severe pain probably referable to a kidney, if following a boil or carbuncle, should arouse suspicion of a perinephritic abscess.

The morphology and grouping of the gonococcus are more to be relied upon than the staining or lack of staining by the Gram method.

Bismuth rarely causes stomatitis, and when it does do so the stomatitis is apt to be light in character and only around bad teeth.

Obstinate ulcers of the bladder may be syphilitic in origin. If local measures fail or there is a suspicious history, make a therapeutic test.

When urethrotomy is indicated—which is seldom-the procedure that gives best drainage is a combined internal and external urethrotomy.

Do not use serum for the Wassermann test if the patient has recently been drinking alcoholics, since they may change a positive into a negative

In pyuria, do not jump to the conclusion that the focus is in the bladder or higher up; a primary duty is to eliminate the urethra, prostate and seminal vesicles.

In treating a syphilitic, always bear in mind that what you are doing for him ishis best in-surance against paresis, tabes, and other later manifestations.

In the case of sharp bleeding after the use of an easily introduced urethral instrument, examine urethroscopically. You may find a papillomatous growth in the canal.

A vesical irritation in a woman without gross urinary changes points to the need for a careful pelvic examination. In some of these cases a misplaced uterus is the cause.

The time to take out an enlarged prostate is before serious damage has been done to the kidneys. When a constant residual urine of 30 cc. has been established, the time is well at hand.

Inasmuch as the most important factor in the mortality of prostatectomy is renal incompetence, it is obvious that close attention to the renal function is essential if this mortality is to be kept

Heart complications follow gonorrheal infections more frequently that we suppose. Gonorrheal cases complaining of precordial pain, palpitation, irregular beat, or dyspnoea should be put to bed and very carefully examined.

"Calculus of the Upper Urinary Tract Treated By New Methods; End Results."—Guy L. Mumner (The Journal of Urology, July, 1928), believes that there is an important causal relationship existing between the presence of ureteral stricture and the formation of calculi in the upper urinary tract. Clinical experience suggests that it is possible for a calculus in the kidney to have as a nucleus a ureteral stone, which has migrated as the result of dilation of the ureter above the stricture. Most renal calculi, however, no doubt arise in the kidney, and their formation is probably influenced by renal stasis caused by ureteral stricture. This, however, is not the whole story, or we would be confronted with a far greater ber of stones than we really are. In treating calculus of the upper urinary tract, the establishment of adequate renal drainage is to be sought chiefly, according to the author, who believes this dictum to be borne out by the end results in seventy-eight cases under his observation since he began this mode of treatment in January, 1927.

"Investigations on the Ureter and Kidney in Pregnancy."—Kamniker (Wien. Klin. Woch., July 5, 1928), at a meeting of the "Geburtshilflich-gynaekologische Gesellschaft" in Vienna, June 12, 1928, demonstrated numerous uretero and pyelograms which showed the changes taking place in the ureters and renal pelvis in pregnancy and the puerperium. Three types of women were observed, those who had no trouble, those who complained of a slight nagging pain in the renal pelvis, and finalily those who presented all the signs of pyelitis of pregnancy. Dilation of the ureter and renal pelvis could be demonstrated. At the lower end of the renal pelvis at the physiological narrowed portion of the ureter was found kinking which took various forms. Similar changes were also found in pyeloscopic observations. The pain in the kidney and ureteral regions, found in so many pregnant women, is apparently caused by the dilatation and kinking of the ureter. The ureteral catheter could be introduced only for 15 to 18 cm. in these pregnant women.

"A Case of Syphilitic Mastoiditis."—R. Gaillard (Ann. des. mal. del' oreille, April, 1927), reports the occurence of a mastoid gumma accompanied by meningitis and paralysis of the seventh cranial nerve. Surgical intervention and complete recession after three injections of neosalvarsan.

#### ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M. D. 717 North Robinson St., Oklahoma City

Krida, A.: Congenital Dislocation of the Hip; the Effect of Anterior Distortion; A Procedure for its Correction. J. Bone and Joint Surg., 1928, x, 594.

Confining his remarks to the closed reduction of congenital dislocation of the hip in young children, Krida emphasizes the importance of recognizing the anterior distortion in this condition and its effects upon reduction and retention of the head within the acetabulum.

After reviewing the historical aspects of the treatment, he describes in detail a method he has used satisfactorily in nineteen cases with anterversion of the neck. He is of the opinion that distortion is a more frequent cause of failure in permanent reduction than is generally recognized. Therefore, after reduction and the ninety-ninety position for two weeks, he removes the plaster and places the limb in a degree of internal rotation which is necessary to overcome the anterior distortion entirely. Ordinarily, the limb is held in this position for three months and at the end of that time, the internal rotation is corrected by a manual supracondylar osteotomy in which one hand fixes the head of the femur in its original position and the other hand rotates the lower fragment outward until the patella lies in the sagittal plane or somewhat beyond it. Plaster is then applied with the hip in moderate abduction and with slight flexion at the knee. In unilateral cases, this cast is left on for six weeks, and in bilateral cases for a longer time. On its removal, normal activity is resumed gradually.

Isolated Contusions of Bones (Experimental Research) G. Toschi. Chir. D. Org. di movimento, xii, 41, January, 1928.

The author, by means of a bruising apparatus, devised by him and with which the violence of

the trauma can be fixed accurately, has produced pure contusions of bone (i.e., not associated with fractures, infractures, fissures or the detachment if even minute fragments) in the middle third on the antero-internal surface of the right tibia of rabbits of the same age and same state of nutrition. In a series of experiments, studying at varying intervals the objective signs and the microscopic and microscopic alterations in the contused right tibia with the non-traumatized left tibia, the author reveals the various clinical factors (pain, redness, ecchymosis, tume faction of soft parts and bone functional disturbances) and the anotomopathological factors (subperiosteal bone changes, etc.) represented by extravasated blood, by oedema, by proliferation and multiplication of formative cells of bone and of fibrous connective tissue even to the formation of haversian architecture, that calcified reproduces exostoses and hyperostoses, and that from the anatomopathologic point of view would be defined as circumscribed traumatic osteoperiostoses.

The experimental researches, illustrated with figures of the various states of the evolution of bone contusions, are followed by considerations regarding the process of subperiosteal ossification and by conclusions which have a certain practical value.

Fracture and Dislocation of the Stermum. Report of Three Cases. Herbert H. Holderman. Ann. Surg., lxxxviii, 252, August, 1928.

This is a rare condition. The ribs usually break first. Direct trauma is the most frequent cause. Blows or compression of chest are most frequent causes. It has been known to occur from muscular action. The most common type is a transverse fracture at the junction of the manubrim with the gladiolus. The prognosis is good, except in the complicated cases. Diagnosis is usually not difficult. The lateral x-ray shows the fracture better than the anteroposterior view. Reduction is accomplished by hyperextension of the head and arms over the end of a table. Open operation is justifiable if manipulation fails. Adhesive strapping and rest in bed is the best treatment. Three cases are reported.

Wakeley, C. P. G.: Sn. Ossifying Chondroma of the Ribs Mistaken for Sarcoma. Brit. J. Surg., 1925, xiii, 175. .

Wakeley reports the case of a man 42 years of age, who, in 1916, sustained a severe contusion of the right thorax and in August, 1923, noticed a smooth lump the size of a walnut one inch above and external to the right nipple. Pain and weakness developed on the inner size of the right forearm with numbness and tingling of the ring and little fingers.

Examination revealed a large, rounded, pulsating tumor of the right thorax which was fixed to the chest wall; slight weakness of the muscles of the right forearm and hand supplied by the lower cord of the brachial plexus; and atrophy of the thenar eminence. The x-ray diagnosis was malignant tumor.

At operation, a lobulated, pearly blue tumor measuring seven by six inches was removed from the fourth rib. On section, definite areas of ossification were found. Microscopic examination showed the tumor to be typical chondroma. When the patient was seen six months after the operation he had completely recovered.

Genu Varum and Genu Valgum Infantum: M. Boehm. Ztschr. f. orthop. Chir. xlix 321, 1928.

There is no doubt that many cases of genu varum or genu valgum are not caused by rickets. However, various theories which have worked out to explain these frequent deformities have not been satisfactory to Dr. Boehm who, with his well known industry and skill, has carefully studied this problem. His studies have led him to the conclusion that the non-rachitic genu varum and valgum represent a regressive rather than a propressive variation of the development of the skeleton of the lower extremities. The normal phylogenetic development shows very distinct declina-tions of a more or less degenerative character. Static and mechanic forces, weight-bearing and transformation, heretofore considered to be of sole or main value in the development of lateral deformations of the legs, are not of such importance in regard to the primary development, but act only as a secondary force after the natural varying development has induced to characteristic declination. The human leg of the new-born lies in a position of flexion, lateral declination, and outward rotation of the knee joint. Postnatal development during the first five years, as Boehm has observed on many children as well as specimens of cadivers, shows a disappearance of the flexion, a slight medical declination, and a slight inward rotation of the knee. In certain cases, however, variation of the normal development takes place in a progressive rather than a regressive sense, leading eventually to the formation of a genu valgum rather than a genu varum.

Operation of the Habitual Dislocation of the Shoulder Joint: Kirschner (Tuebingen): Zentralbl. f. Chir., lv, 946, 1928.

Kirschner discusses Hoffman's operative method for the repair of the habitual dislocation of the shoulder, which consists in slinging a wire around the humerus and fastening it to the acromion. Kirchner points out that Hoffman's method is but a poor modification of his own method, consisting in slinging a fascial ligament around the head of the humerus without opening the joint. Kirschner has operated on thirteen cases and in only one case recurrence has taken place. Most of these cases were operated on many years ago. Lately Kirschner has pulled the fascial strip through a bone channel just below the head in sagittal direction. He thinks his method is simpler and less dangerous than those methods which open the joint. An absolute guaranty cannot be given by any method, in regard to the avoiding of recur-

Ossifying Hematoma: James B. Bullitt. California and West. Med., xxvii, 508, October, 1927.

A boy of eighteen developed a hard swelling in the lower third of his thigh, three weeks after injury in a football game. Roentgenogram showed a lightly calcified mass three and five-tenths by six centimeters in size attached to the femur, but slightly movable. The mass was removed nearly three months after the injury and was found to be made up of bone. Roentgenogram, four months later, showed no recurrence of the growth.

The question arises whether this is a myositis or an ossifying hematoma. The former term does not seem well chosen because, in such cases, the muscle takes no part in the process but rather is passive. The bony growth proceeds in blood clot and goes in between muscle planes, not into the muscle substance. Whether the bone tissue is derived from displaced periosteum or whether it is the result of a traumatic aseptic myositis, is still an unsettled question, with the latest investigations favoring the latter theory. Numerous observations have shown that connective tissue can form bone, as observed in repair of fractures.

This paper includes a very able discussion from an embryologic point of view, on the formation of these growths and the weight of evidence seems to be that the periosteum does not play a necessary part in them.

Stabilization of the Shoulder Joint for Habitual Dislocation. Hans Spitzy. Surg. Gynec. Obstet., xlvi, 256, February, 1928.

Cases operated upon by the author's method recovered complete working capacity and full motion, with no recurrences. The operation consists of exposing the deltoid insertion by a curved incision, detaching same and retracting the muscle upward, then passing strong, double silk around the surgical neck of the humerus and tying in front and suturing and tying the four strands to the coracoid process and its attached biceps tendon. The capsule on the front of the shoulder joint is reefed and sutured over these four strands of silk, thus reenforcing and shortening the capsule at its weak part. The deltoid insertion is sutured in place and the arm is kept at rest for four weeks; then careful exercises are begun.

# DR. A. L. SKOOG

—wishes to announce the resumption of consultations for nervous and mental cases after some months of visiting and work in several European clinics. Returning home February, 1929. Out-of-town consultations considered.

Appropriate arrangements in Kansas City for patients requiring confinement.

Twenty-five years' experience limited to study, practice and consultations in the field of neurology and psychiatry.

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Meeting Place, 1929, Oklahoma City.

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#### PELVIC VARICOCELE\*

A. W. PIGFORD, M.D. TULSA

In looking over the field for a subject on which to write, it was rather difficult for me to select a topic, but since I have been interested for the past decade in varicosity of the broad ligaments in the female, and since there is practically nothing written, even in the modern text books, on gynecology, and yet it is such a common occurrence leading to all kinds of symptoms ranging from pain and hysteria to melancholia, I feel that it is due time for this subject to be brought before us for discussion.

As stated, there is practically nothing in the text books, but on thorough investigation of literature, we find that there is quite a bit written on pelvic varicocele, by a few writers with practically all using the same references.

Richet, in 1854 made a careful study of pelvic veins, and called attention to tuboovarian varicocele. In 1887, Dwight of Boston, reported the first case in America. In 1888, Dudley of New York, published his classical paper with a report of four cases. Since that time, a few papers and case reports have been made. Costano, in 1913 began to study pelvic varicocele, since which time he has written much of great value. However, with his main etiological factor I can not agree, though his Argentine method for radical cure seems very plausible. (In 1924 Polak and Phelan published a very thorough and concise resume under the title, "Pelvic Varicosities.")

Emge, in 1921-25 reported his observations of thirty-five cases in his first monograph, and twenty four in his last, with with much valuable data, and concludes that varicose veins are due in the vast majority of cases to damage of the fibroelastic suspensorium, and that conservative measures are usually sufficient to cure the condition.

### ANATOMICAL POINTS AS A PRE-DISPOSING FACTOR

Veins have three coats the same as arteries, though the muscular coat is not nearly so well developed as that in the arteries. Veins have valves, but not so in the pelvic veins. This pre-disposes them to over distention. At certain points the support of their walls is insecure, this being very true in the ovarian circulation, more so than in the uterine venous channels. As you know, the ovarian veins and their pampiniform plexuses are supported by a delicate network of intrinsically interwoven strands of elastic fibers and delicate, smooth muscle fibers. This delicate support is attached to the peritoneum at one end and the basal ligaments of the pelvic fascia at the other. This is not strong enough to withstand a great deal of pressure or a prolonged vascular distention. The veins swing in a kind of peritoneal hammock. Just before they reach the pelvic brim, they are subject to pressure from the sigmoid on one side, and the cecum on the other. The ovarian circulation is more subject to varicosity than the uterine. Remembering your anatomy, the right ovarian vein empties into the inferior vena-cava, while the left empties into the renal vein which it joins at right angles without a protecting valve. There, however, is a valve where the right enters the inferior vena-cava, this being the only valve in the venous circulation of the pel-Whenever there is stasis in the ovarian circulation, the long column of venous blood, extending from the ovary to the vena-cava, or left renal vein, gravitates to the most dependent portion; namely, the pelvic course of the vein. Any added strain on the ovarian circulation necessarily aggravates the embarrassment already existing by virtue of anatomical peculiarities of the ovarian veins. Due to this condition a part of the

<sup>\*</sup>Read before the Section on Surgery and Gynecology, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1928.

outflowing venous blood is thrown upon the adjacent peritoneal veins resulting in pressure affecting the nerve fibers causing deep-seated pain commonly spoken of as ovarian neuralgia.

#### ETIOLOGICAL FACTORS

Varicosities of the female pelvis are practically always observed during the child-bearing menstrual and Skene stated that he never saw a case under twenty-five or over sixty years of age; therefore, menstruation and parturition are important etiological factors. Knowing the changes taking place in the tissue during, and following acute pelvic inflammatory conditions and cellulitis, connective tissue organizes and scar tissue contracts, fibrous bands are formed that interfere with the venous return, leaving lake-like areas within the veins partially blocked by these fibrous bands, the result of which is varicosities. Dudley divided the etiological factors into two groups; constitutional and mechanical.

#### CONSTITUTIONAL

Subinvolution of the ovarian and uterine vessels, prolonging pelvic engorgement, relaxation of the pelvic tissues, poor general health, abnormal changes in the venous walls due to inflammatory conditions and aggravated by the anatomical facts of absence of valves; the result is an increase of pressure in the pelvic veins when the patient is in the erect posture. Costano, in his extensive study, concluded that varicosity is due to infection, and practically always syphilitic in origin.

#### MECHANICAL

The anatomical peculiarities of the ovarian vein; the left more frequently involved because it empties into the renal vein at right angle and has no valve. "This is also true in the male varicocele, the left being more often involved." The length of the ovarian veins habitual constipation with intestinal pressure, uterine displacement, and probably the most frequent cause is pregnancy. Subinvolution prevents the circulation from returning normal, the circulation remaining in the state of stasis for a long time after which there may be a permanent distention of veins. Next in importance to pregnancy is uterine displacement, stasis leading to the formation of vicious circle, the stasis aggravates the pathological condition of the uterus, resulting in an increase in the

size and weight, causing hypertrophy and hyperplasia, and finally fibrosis. This also affects the ovaries in a similar manner, causing a sclerocystic condition leading to menstrual disturbances.

#### SYMPTOMATOLOGY

There may be a vast number of symptoms, but they are practically all subjective. The most important is pain which is, to begin with, similar to those of varicocele in the male. The patient wakens in the morning refreshed and without pain. After assuming the erect posture, the dull, bearing-down, aching pelvic pain begins. Usually it is located in the left side in the extreme lateral portion of the pelvis because the left ovarian veins are usually the ones involved. As the day grows older, the pain grows worse, and is reflected to the lower back; inner and back part of thighs. Quite often after long standing, the patient complains of vesical and rectal tenesmus. Occasionally the pain etxends up the left flank and back. The pain usually subsides when the patient rests in the recumbent position. There is frequently dysmenorrhea, pain coming on several days before menstruction begins, this is usually of menorrhagic type.

Some times there is also an increase in the menstrual cycle, menstruation being at shorter intervals, at first there being ovarian congestion causing over stimulation. As the result there is hyperplasia of the endometrium, fibrosis preventing the development of the graafian follocles and interfering with the blood supply. The flow ultimately becomes irregular and scanty. Quite often there is leukorrhea of the hydrorrhea type.

The objective symptoms are few and not always present nor dependable. Sometimes the vagina is of a bluish tint, moist and of thick appearance. There may be varicosities of the vagina and vulva, also of the thighs. There is usually a large retro-displaced uterus with edematous ovaries and a history of one or more labors. While it is true that the majority of cases are diagnosed after the abdomen is opened and, in some cases it is not then made, as in the dorsal position the venous distention is relieved and the condition is overlooked. If the uterus is pressed between the hands one will usually see the veins filling up, even in the dorsal position. So in making a diagnosis after a complete *history* is taken, it is necessary

to put the patient in different positions. If a bimanual examination is made, with patient in upright position, in a fairly thin abdomen one will feel a soft, compressable mass in the left tubo-ovarian region. By assuming the dorsal posture with hips elevated, the doughy mass disappears.

#### TREATMENT

### PALLIATIVE AND SURGICAL

The greatest lesson that we have learned, to date, is to prevent rather than cure. Hence, the care of school and working girls before marriage is very important. Proper posture as well as clothing, exercise, fresh air, food and attention to the intestinal tract and menstruation is very important. Habitual constipation should receive special attention and not be allowed to persist. Expectant mothers should always have proper pre-natal as well as good obstetrics and post-natal care. As soon after delivery as possible, mothers should be taught to lie on right side with left limb drawn up, and on abdomen, to prevent retro-displacement. While there is subinvolution, many of these patients become neurasthenics because of pain, and on account of failure of a diagnosis and proper treatment of these cases many of them are driven from our profession into the hands of chiropractors and osteopaths. The monkey walk and knee-chest position for fifteen or twenty minutes, two or three times a day in retro-displacments, where the uterus is not fixed, is very valuable. Local treatment is important to clear up discharge. These are simply aids and not cures.

As to surgical treatment there have been many measures employed; resection of veins; tying ligated ends together and suturing openings in broad ligaments; multiple ligation of veins and ventral fixation; shortening of the sacro-uterine and round ligaments; resection of the ovaries and tubes; hysterectomy; and the Argentine method, which Costano advises, (exposing the illio-ovarian ligaments, bringing the varicose utero-ovarian veins into view, ligating them above and below with cat-gut, and dividing each vein between the ligatures.) The Argentine method, to me, seems very plausible, as it relieves the pressure high up and guards against recurrence, however, I have never used this method. The majority of my cases have been due to retro-displacement and a first degree prolapse. I have always obtained good results by clearing up the cervical infection, (which most of them have) restoration of the pelvic floor, shortening of the sacro-uterine ligaments, usually using the Noble's method and Gilliam's suspension of round ligaments, taking particular pains to bring the uterine end of the broad ligament higher than the pelvic end.

## In conclusion;

- 1. Many of the obscure pelvic conditions are due to varicosities.
- 2. Many anatomical peculiarities predispose to pelvic varicosities.
- 3. The most important causes are, focal infection, pregnancy, and uterine displacements.
- 4. The principal symptom is pain, aggravated by the erect posture and alleviated by assuming the dorsal posture.
- 5. The condition is curable with the proper surgical treatment.

In cases in which there have been pathological conditions I either resect or ligate the utero-ovarian veins and do the suspension.

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# INDUSTRIAL SURGERY\*

# W. F. McAnally, M.D. Tulsa

I have been asked to present a subject to you this evening, with which most of you are already more or less familiar. That is "Industrial Surgery", which, at some time or another, demands the cooperation of all medical specialists. Industrial surgery can perhaps best be defined as that part of the practice of medicine which deals with the treatment of injuries and other conditions arising out of, or in the course of industry. It is, or should be, therefore, a separate division in the practice of medicine, and in its broadest sense should embrace both the prevention of industrial accidents and occupational diseases, as well as their treatment after their occurrence. It also should include a

<sup>\*</sup>Address delivered before the Tulsa Academy of of Medicine, December 19, 1928.

general supervision of health conditions among all employees of industry and the members of their families. The subject of prevention of industrial accidents and diseases, however, is so great, and applies to so many different industries, each with their own separate problems, that it is thought best not to attempt to go into it The principles underlying the treatment of the actual industrial injury do not differ from those of general surgical practices elsewhere, and it should be borne in mind that fundamentally an injury is an injury, whether it occurs in a street car, a store, on the street or in the factory. There are, however, certain qualifications and certain specific knowledge which an industrial surgeon should have over and above those possessed by the general practitioner. These, I will try to show you.

The surgeon engaged in general practice oftentimes does not make the best man for the industrial organization; this, altho it is very necessary that the industrial surgeon have a good working knowledge of the principles of general surgery. The general surgeon is frequently handicapped by the fact that he is in general practice, and that he tends to rely too much upon the statements made to him by his patient. I do not mean by this that all industrial accident cases should be considered as liars or malingerers. I do mean, however, that the surgeon should make his examination and should arrive at a tentative diagnosis before the statements of the industrial accident case should be taken into consideration. Nowadays, with the application of our compensation laws and the daily occurrence of public liability cases, generally with the hope, or at least the thought of future financial settlement, we very often find, what for want of a better name, I shall call the unconscious malingerer. The conscious malingerer, of course, should receive no consideration. The unconscious type of malingerer, however, who may be suffering from some constitutional or mental disease, deserves our greatest efforts, both for his own sake and for the sake of industry. If not disabused of his "idee fixe", in time he may go on to an actual permanent disability which is as great as if it were due to an actual organic condition. All of us have seen cases in which it was impossible to decide as to the extent or the duration of disability following industrial and public liability accidents. In numerous cases of this character, after a cash settlement has been made, these men have often times improved and ultimately secured a fair, or excellent, functional result without further treatment. There is still another class of accident case, which, for want of a better name, may be called a traumatic neurosis. This class partakes of the nature of both the conscious and unconscious malingerers and generally follows accidents which are accompanied by loud explosions, fires, etc. The patient may, or may not have received any demonstrable injury. If he has received one, his symptoms are much more extensive than the nature of the injury would lead you to expect. These conditions may be considered the result of several inter-acting factors; they may be due to a desire for compensation; they may be due to fright during the actual occurrence, or they may be due to the fear of the results of the accident; such as disfigurement, permanent disability, etc. Again, they may occur in those thin, anemic, nervous individuals who are generally below par-who may have trouble in securing and holding a position, and who may have family troubles, due to their inability to support their families as well as other men in the same walk of life do. Therefore, in order to justify himself before his family and the world, and to receive sympathy, a man of this type is often more or less permanently disabled following an accident which is minor in nature. I do not believe that these cases are caused entirely by the hope of financial settlement, altho this thought may greatly intensify the disability. Thus, any or all of these mental reasons must be considered in arriving at a prognosis.

No discussion of industrial surgery would be at all complete without at least a mention of back injuries and fractures of the extremities. Most of you will remember that some years ago, during the time of "Trust Busting" and the "Big Stick", the railroad surgeons of this country recognized a distinct clinical entity which they called the "Railroad Spine." It appears to me that we are now developing what may be called an "Industrial or Public Liability Spine." In perhaps twenty-five percent of the cases of claimed back injuries with which I have come in contact during the past eight years, there has been actual bony injury to the spine, which could be demonstrated

upon examination or by the X-ray. In this connection I wish to call your attention to something which has been rather surprising, and this is that there is very often no apparent agreement between the bony injury found upon examination, or X-ray, and the apparent severity of the accident itself. It is surprising to note how easily a large, muscular, adult may sustain a fracture of one or more of the lateral processes of the vertebrae, or a compression fracture of the body of one or more vertebrae. I have seen cases involving the fracture and more or less separation of the lateral process from the body of the vertebra which were caused by nothing more severe than a sudden muscular exertion or strain while the man's body was in a twisted position. My files also show a case in which an employee fell about four feet and landed upon his buttocks. In this accident he sustained a fracture of the crest of the right ilium and a compression fracture, with slight lateral displacement of the body of the fourth lumbar vertebrae. Oftentimes, as in this case, these men complain of very slight pain and attempt to continue at work. The great importance of a correct and prompt diagnosis in cases of this character can easily be seen, as if not promptly and intelligently treated, these cases will almost always have more or less permanent disability. On the other hand, I have seen cases of apparent severe crushing injury in which there was very little, or no bony injury. Therefore, in these back injuries little dependence can be placed upon the apparent severity of the accident; in fact, so little dependence is placed upon it that an X-ray is always requested in back injuries occurring among our men, whether it is seemingly indicated or not. Another 25 to 30% of these back cases will have no demonstrable lesion, either muscular or bony, and it is believed that the greater number, of this class of cases, are either very much exaggerating their symptoms or are malingerers.

These also require prompt attention and often times close observation over a long period of time to establish a diagnosis. The remaining 45 or 50% of cases of back injury, it is believed, have an actual muscular or bony lesion, which, however, has no connection with the alleged injury, but which are due to sickness, among which osteo-arthritis and tuberculosis are perhaps the outstanding causes or to one of

the mental types as set out before. These cases are often times perfectly honest in their claim for as far as they know their condition was caused as a result of an accident. Perhaps the greater number of these cases, upon X-ray examination, show evidences of a proliferative osteoarthritis. We, of course, know that an accidental injury, in the presence of a focal infection can cause such a condition. Fortunately, however, we also know that a generalized vertebral osteo-arthritis, with more or less rigidity of the spine, cannot develop within a few days, or within a few weeks. Here again promptness and correctness of diagnosis is all important.

Just a few comments regarding fractures of the extremities. First; simple fracture of the femur; particularly when in the lower third of the bone. A good many of these fractures are exceedingly difficult to reduce and it has been noted that after two or three attempts at replacements have been made and two or three fixative plaster casts have been applied, they are, it is believed in far too many instances subjected to open operation. As a matter of fact it is not believed that over one percent. of these cases should be opened up. My records over the past eight years show only one case that was subjected to early open operation, and it is not believed that this operation was justified. These cases almost invariably, by the application of Steinmanns' pins or ice tongs and extension on a double inclined plane can be reduced and a satisfactory functional result secured. I, of course, do not mean to state that in cases of long standing, or of mal, or non-union, or in compound comminuted fractures, open operation should not be resorted to. It is, however, surprising to note what almost instant relief from pain and what generally excellent, functional results may be obtained by this method of treatment. It is also rather surprising that in view of the results generally obtained, this method is not more generally resorted to. In cases of vicious, non or mal union it is believed that open operation, with application of massive beef bone plates, rather than autogenous bone grafts or metal plates, is the preferred method of treatment. Lanes' plates usually give trouble if allowed to remain, or require a second operation for their removal; on the other hand, it is often very difficult to secure autogenous grafts of sufficient size

and strength to accomplish the purpose. It is pretty generally established, it is believed, that autogenous grafts are useful only as fixative and stimulative, or perhaps I should say, proliferative agents. In the greater majority of cases the massive beef bone grafts will furnish better fixation and the irritation of the operation together with the freshening of the ends of the fractured bone will furnish the necessary stimulative or proliferative effect. In all of these cases early passive motion, and a little later guarded active motion of the adjacent joint should be instituted. It is believed that cases treated in this manner come to an earlier and generally better economic recovery, than by any other method of treatment.

In fractures of the upper extremities, it is desired to call your attention to the rather common Colles fracture, with which you are all familiar. This rather simple fracture, due perhaps partly to its frequency of occurrence, causes a loss of time and a resultant partial permanent loss of use, out of all proportion to its apparent seriousness. It seems surprising, but this fracture is seemingly rather difficult to reduce correctly. At least it has been so in numerous cases coming under my observation. A number of cases have been seen of some months standing, which have supposedly been reduced, but which show a resultant partial disability; almost invariably, upon X-ray examination an impaction of the fragments can be demonstrated. It has been found that in these cases if the impaction is thoroughly broken up immediately following the accident, a satisfactory result is generally rather easily secured.

Another condition found in the upper extremities which gives rise to an excessive loss of time and an excessive partial disability is the dislocation of the Semi-Lunar bone. This condition, fortunately, is not of very frequent occurrence. When it does occur, however, it is very often rather disabling, and it may be, and fairly frequently is, accompanied by a fracture of the Scaphoid bone. In the diagnosis of this condition the bone may often times be felt on the inner or flexor surface of the wrist. In numerous cases, however, if the displacement is not marked, an X-ray in the lateral position is necessary to establish the diagnosis. The condition generally causes considerable pain, and if not corrected almost always results in from 75 to 100% loss of use of hand. The dislocation is frequently irreducible and almost always so when accompanied by a fracture of the scaphoid with forward displacement of the fragments; the bones should then be removed. Removal is also indicated in case the injury is compound. Removal will generally reduce the resultant partial disability to ten or twenty percent loss of use of the hand as compared with 75 to 100% loss of use when not reduced or not removed.

I am aware of the fact that this paper is very incomplete, but in a discussion of this character, I have only attempted to touch upon the "high spots," not trying to go into details concerning a subject as all-inclusive as this one is. No claim for originality is made, as these remarks are based upon various articles in the literature, each dealing with a particular one of the subjects I have tried to call your attention, and upon my observation of, and conversations with, various surgeons throughout the State and upon the results of my personal experience during the past few years.

VISUALIZATION OF GALL BLADDER AND DIAGNOSIS OF GALL BLAD-DER CONDITION FROM AN X-RAY POINT OF VIEW\*

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# M. B. LHEVINE, M.D. TULSA

Before the era of present day examination of gall bladder through the Graham method of visualization the only direct sign of gall bladder pathology was the visualization of gall stones, on the X-ray film, and a thickened wall of a gall bladder shadow which was considered pathological. Gall stones, however, could not be visualized in more than about 25 to 30 per cent of cases. The pathological gall bladder with its thickened wall was also not very often visualized and in many instances, as we know now, through the aid of cholecystography, these shadows were not of the gall bladder at all. Not having very many direct ways of ascertaining gall bladder pathology through direct methods we had to fall back upon indirect signs and observations. These signs were of great importance, and to a great degree, are helpful in doubtful cases even to-day.

<sup>\*</sup>Read before the Section on General Medicine, Neurology, Pathology and Bacteriology, Annual Meeting Oklahoma State Medical Association, Association, Tulsa, May, 1928.

These indirect signs, as observed, were as follows:

- 1. A definite pyloro-spasm.
- 2. A perfectly normal stomach and duodenum with pressure sensitiveness confined to the gall bladder area.
- 3. Hyperperistalsis of the stomach with considerable residue at 6-hour despite the hypertonicity and hyperperistalsis.
- 4. Persistent pressure of gas in the hepatic flexure.
- 5. Very high position of the hepatic flexure indicating the presence of adhesions.
- 6. Deformity of pylorus, especially a concavity due to pressure of a large gall bladder.

These and other indirect signs have been since proven unreliable and present in individuals who had no gall bladder disease. The most important and epoch-making method in roentogen study of the gall bladder is the discovery of cholecystography by Graham, Cole and Copher, by means of Sodium Tetraiodophenolphtalein.

Cholecystography enables us to study both the physiology and pathology of the gall bladder based on the normal or disturbed functions of the gall bladder. In order that the gall bladder may be visualized through the administration of the dye it is necessary, as has been pointed out by Graham and his co-workers, that the liver excrete the dye, that the hepatic, cystic and common ducts be potent, that the gall bladder have the ability of emptying and filling itself, that the latter once filled be of a size to contain a sufficient amount of dye to give rise to a shadow, and that the gall bladder be able to concentrate the dye. If these conditions are fulfilled we have a normal functioning gall bladder. Any deviation from these essential requirements denotes abnormal or disturbed function.

When a hollow viscus is rendered visible by X-rays through an increase of the opacity of its contents its characteristics are revealed through the following points of study.

- 1. Location.
- 2. Relations.
- 3. Content.
- 4. Outline or form.
- 5. Capacity or size.

Through cholecystography we have learned that the anatomical description

of the location of the gall bladder being constant is erroneous. The fact is that the normal gall bladder may be observed lying at any point from the level of the 9th rib, posteriorally, to the true pelvis in the vertical direction. This variability in position would account for many cases of gall stones overlooked in the past because of the tendency to regard the position of the organ as of far greater constancy than is truly the case, the stones being missed through lying away from this accepted position.

The gall bladder is subject to those forces which affect the position of other abdominal organs, namely, posture, respiration, pressure of other structures. The determining factor, then, is body habitus of the individual. Observations of the visualized gall bladder have abundantly confirmed this view, and fairly well correspond to Mill's observation on the relation of body habitus to gastro-intestinal form and function.

RELATION TO OTHER STRUCTURES, AS TO

THE SPINE AND KIDNEY, DUODENUM, ETC. Content. The opaque gall baldder should be filled evenly and completely. Gross defects of filling indicate a pathological condition.

Outline of Form. The gall bladder ranges from a circular through various ovoid forms to an elongated pyriform shape. The size and shape of the visualized gall bladder are subject to an equal or almost greater degree of variation than its position, and may yet be entirely normal as far as function is concerned.

Capacity or Size. The normal gall bladder alters in size at different hours of cholecystographic examinations. It is largest at the 12-hour period, (we use the oral method) it is less at the further period of examination through the process of dye concentration. When food is given, especially fatty food, its size diminishes to a great degree. Capacity to alter in size is a measure of the elasticity of the gall bladder wall and knowledge of this quality is helpful in appraising the condition of the organ. If the shadow of the gall bladder is of standard density, regular in outline, homogeneous, and decreases in size after a fatty meal—it may be relied upon to denote a normal functioning organ.

## CHOLECYSTOGRAPHIC CRITERIA OF THE PATHOLOGICAL GALL BLADDER

1. Non-visualization of gall bladder.

2. Faint visualization.

3. Delayed appearance of gall bladder.

4. Deformity of gall bladder.

- 5. Gall stones.
- 6. Persistence of gall bladder shadow.
- 7. Excessive size of gall bladder.
- 1. Diseases of the liver must be very extensive. Obstruction of the intrhepatic duct system, the cystic or common ducts. Catharral jaundice—irrespective of its cause is always followed by a non-visualization of the gall bladder.
- 2. Faint visualization of the gall bladder is but a degree of gall bladder deficiency of which non-visualization is the complete expression. It may be due to the same causes that produce non-visualization, and also be brought about by partial obstruction of the cystic and hepatic ducts. With faint visualization there is nearly always some evidence of lack of distensibility or elasticity of its wall manifested by constancy in size or only sluggish change. There is little or no variation in shadow density at the various periods of examination.
- 3. Delayed appearance is due to a parenchymatous condition of the liver, which retards the excretion of the dye.
- 4. Deformity may be congenital or acquired. The numerous variations in course, position and relation of the neck of the gall bladder should be ignored in the face of a normal cholecystographic behaviour.
- 5. In relation to radiography there are two kinds of gall stones, opaque and nonopaque. The first contain enough calcium to give a sharp shadow. The non-opaque are almost composed of organic material, chiefly, cholesterol. They are visualized radiographically only when situated in a medium of greater or less density than themselves. They are sometimes visualized as "negative shadows." It is not always that we can detect stones in the gall bladder through the visualization method. In many instances the greater opacity of the dye in the gall bladder will obscure the presence of the stone. However, the presence of the stones in the gall bladder will always cause a disturbed function of the gall bladder.
- 6. The persistent shadow of the gall bladder is probably due to a failure to

- evacuate its dense contents and should be looked upon as evidence of disturbed function.
- 7. Excessive size is brought about by dilatation and relaxation of the muscle wall of the gall bladder. However, there are some large gall bladders, whose normal function is evidenced by normal behaviour as far as cholecystographic rules are concerned.

### SUMMARY

- 1. Cholecystography is an accurate measure of the functional capacity of the gall bladder. The functional capacity is decreased in proportion to the intensity and duration of a disease process which may have involved it.
- 2. If the gall bladder fills, concentrates, alters in size and empties itself, it is evident that we deal with a normally functioning gall bladder.
- 3. Non-visualization (especially when the dye is administered intraveneously) speaks for a diseased pathological gall bladder.
- 4. Faint cholecystograms indicate impairment of function.
- 5. The Graham-Cole method of visualization of the gall bladder is the greatest advance in diagnosis that has been given to the medical profession in recent years.

## THE DEFORMED HAND\*

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In presenting the subject of the deformed hand before this section today, we can only touch upon some of the most important principles. Up until the last few years, the abdomen and its surgical troubles, has held the center of interest; recently other branches of surgery are coming into their own. It is with a desire to impress upon you the importance of the preservation of the hand, that this paper is presented.

The hand is our most important member. Three outstanding characteristics differentiate us from the animals:

1. Our ability to reason.

<sup>\*</sup>Read before the Section on Surgery and Gynecology, Annual Meeting Oklahoma State Medical Association, Tulsa, May, 1928.

- 2. Our ability to stand upright and walk.
- 3. The intricate function of the hand, or the thumb finger, known as prehensile use.

Our nearest neighbor in the animal kingdom, the monkey, has all the grasping functions, but has not the so-called prehensile use of the fingers. He cannot be taught to write, and use his fingers as we do. It is not alone his brain, but his hand which prevents him from carrying out this important accomplishment. The human hand has probably aided man in the development of civilization almost as much as his brain. The term Manus or hand, has become the root for many of our



Hand before operation. Deep burned scar involving tendon sheaths.

words such as manipulation, etc. It then becomes the duty of the surgeon to do everything in his power to maintain this hand, and to preserve for this hand, its every normal function. What are the outstanding functions of the hand?

- 1. The prehensile motion; the finger and thumb grasp.
  - 2. The ability to clasp the hand.
  - 3. Pronation and supination.
  - 4. The flexibility of the wrist.



Hand after operation. Note graft.

It has been said that the prehensile function should constitute fully one-third

of the evaluation of the worth of the hand. The ability to open and shut the hand should constitute one-third of its value, and that the ability to flex and extend the wrist is worth not over ten or fifteen percent of hand function, provided the grasp has not been interferred with. It is necessary to state these facts so we may get a better understanding of what we should attempt to accomplish in our preservation of the hand. Consequently in all of our reconstruction work, we must try to preserve—



Hand open, showing complete freedom of motion.

- 1. Prehensile function.
- 2. Ability to open and shut the hand.
- 3. Supination and pronation.
- 4. Wrist function.

The Etiology of the deformed hand can readily be divided into three great classifications;

- 1. Congenital deformities.
- 2. Deformities due to disease such as spastic paralysis, infantile paralysis, the various forms of rheumatism, and contractures such as Dupuytren, etc.
  - 3. Those due to injuries.

Those due to injuries are classified into

- Those due to loss of skin.
- 2. Those due to infections.
- 3. Those due to fractures.
- 4. Those with loss of tendons.



Hand closed.

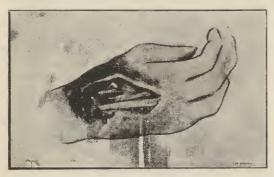
In our paper today we will take under consideration only those due to injuries, and these of necessity, somewhat briefly.

1. The hand which has lost some of its covering. Namely, those on which some skin plastic is necessary, and those not associated with loss of tendons or the loss of bony structure.

(a) Skin lost by burns.

(b) Skin lost by crushing injuries.

We will take up as our first class, the management of the child's burned hand, some cases of which we will show directly by slides. As soon as the child is brought to us, if it is brought in the very early stages, namely in the first few hours of its injury, all skin which has been raised to a blister is removed. The hand is then dressed with a two and one-half percent Tannic acid dressing, the hand being held fixed, the fingers to be kept in extension. This dressing should be soaked every few hours and not removed for several days. Provided the destruction has not been too deep, in all probability a great deal of the deep skin will be saved in this manner. However, at the end of ten days or two weeks, all dead skin should be removed by sharp dissection, being very careful to avoid injury to the tendons or tendon sheaths, or small nerves



Shows extensive injury to back of hand, with exposure of tendon sheaths, tendons and wrist joint.

of the hand. The raw surface should then be Thiersch grafted to get prompt healing. In almost one hundred percent these Thiersch grafts will take. In two weeks, be the child ever so young, he can be allowed to freely use the hand. At night the hand should be held in extension or in the opposite direction of the contracture. We mention extension, because the usual burns occur on the palm of the hand, as the child usually receives the injury by grasping some hot object. Fully two or three months should be allowed to elapse or even longer. In the meantime every effort should be made to correct contracture by a properly applied splint at night. We then will leave the splint off for a month or so, allowing the hand to contract, to show us the degree we have to face. Do not leave it off longer, as the contracture will become permanent. This never be allowed to occur.

All scar tissue should now be resected; the free edges of the defect turned over so as to make the defect one-third larger, and an accurately measured full thickness graft be sewed in place and held firmly with sea sponges. We have been able to



Shows the back of the hand after the graft has been applied.

get a very large percentage of full thickness takes with very excellent soft grafts resulting. This treatment is ideal in children under five years of age. It shortens the time and makes things very much easier than to attempt pedicle grafting or pocket grafting which is so ideal in the adult. In the first place it is almost impossible to hold the child's hand in position, second—it is almost impossible to avoid infection, and third—the full thickness grafts grow almost ideally in children.

The treatment of loss of large amounts of skin in adult hands differs somewhat from our treatment of children. If we desire to replace relatively small amounts of skin over the knuckles, over the back of the hands or over the wrists, and not in the palm of the hands, we resort to full



Shows the extent of motion in this hand. Because of involvement of the wrist, there is some stiffness in the wrist, but the fingers are fairly good.

thickness type of graft. Full thickness grafts are especially ideal over knuckle joints. Whenever we wish to replace the palm of hands in adults, we do it with thinly cut pedicle grafts. Pedicle grafts · as a class should be cut just as free from areola tissue as possible. The ideal method is after removing all scar tissue from the palm of the hand, or whatever place it may happen to be, is to attach the hand to a thinly cut pedicle from the abdomen and leave it sutured in situ for three weeks, and then cut the pedicle loose. This method is equally applicable to loss of skin either from burns or trauma, but this is used after all healing has taken place and several months have elapsed to allow scar tissue to contract fully.



Shows an extensive burn in the palm of the hand, which had been operated on unsuccessfully.

The early treatment of loss of skin from the hand is most important. As soon as infection has cleared up, that is, in a week or ten days, following removal of slough, we Thiersch the defect. The purpose of Tiersch graft is to cover all raw area, preventing infection and scar tissue. Thiersch graft should never be used in the hand as permanent graft but merely a temporary affair to hasten healing. In taking our Thiersch graft we should be careful not to destroy a future site for a permanent graft.

The reconstruction of the hand which has become more or less useless following severe deep infection of the tendon sheaths presents a very serious problem. For many, many weeks and months, active massage, passive massage, heat in all its forms, and every attempt of use, should be insisted upon. If in the neighborhood of a good physiotherapy organization, well directed and extensive physiotherapy

is indicated. These measures however, should never be undertaken until all evidences of infection have been eradicated. That means that the hand should be dormant for several months. Following all these things we are permitted with great caution to dissect our tendons, and tendon sheaths surrounding the dissected tendons, provided the sheaths have been destroyed, with fat grafts. The reconstruction of these hands presents our most serious and least gratifying results.



Shows end results with graft in place.

Disability due to mal-union of fractures presents so big a field I am only going to explain a few generalities. In the first place, mal-position of the phalanges as a rule, unless the mal-position be very severe, does little damage. Mal-position of the metacarpae however, often causes a very serious loss of function due usually to destruction of direct tendon alignment or because the tendons must go over an



Shows baby's hand with a deep burn in the palm of the hand.

angle, lengthening tendon distance. When these things are present, it is of course necessary to re-fracture and properly reduce these mal-aligned bones. These cases as a rule come to us with not alone mal-union and tendon distortion, but likewise general tendon fixation due to disuse of the hand, and we have not alone the loss of a member confronting us, but the loss of the hand as a whole.

Injuries associated with the loss of one or more tendons present our most difficult class of plastics. Bushnell of California has worked out a very intricate and wonderful method of nerve and tendon repair of the hand. I believe that in early prophylaxis, with proper early surgery, we have our best opportunity.



Shows end results following full thickness free graft. This is a typical Wolf graft and was very successful.

Many hands come to us with tendons severed. These should not be carelessly sewn up in the office, but should be made hospital cases, and either under local or general anesthesia, ample incisions be made. If the tendons be severed on the finger, the incision should not be made on the palmar surface, but on the lateral surface, so as to avoid the scar being directly over the tendon itself. The incision



Shows the remnants of a hand which was not amputated, because it allows this boy to dress and undress with this hand. It merely shows the importance of saving every bit of hand possible, under all circumstances.

should be ample, and the tendon should be carefully approximated with six or eight fine silk sutures all around the tendon; the tendon sheaths being pierced with these sutures. No sutures should be

placed thro the tendon itself. If the tendon be severed in the neighborhood of the pulley, never cut the pulley. Repair the tendon as best you can, and then later if necessary, you can either stretch or cut part of the pulley, as it is always extremely difficult to make new pulleys. With the loss of more or less tendon, particularly when in the palm of the hand or the fingers, it will be necessary to replace this tendon loss. Live tendons from somewhere else in the body, always offer the best material. The extensors of the 2nd, 3rd and 4th toes are excellent; these tendons being long, strong, and easily removed. We have used these tendons in several cases with no ill effect whatever to the foot. We will show some of these on slides today.

In conclusion we wish to state again the hand is our most important member and should be given every consideration; every endeavor should be made to restore every bit of it. The hand, be it ever so poor is still a hand. The last picture we show is hardly a hand, yet this man begged most sincerely to retain it, stating he could smoke with it and use it in buttoning his clothes.

FOOD ALLERGY — WITH SPECIAL REFERENCE TO ECZEMA, URTI-CARIA, ABDOMINAL PAIN AND MIGRAINE\*

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The relation between protein hypersensitiveness, and hay fever and asthma, has been well established. These two syndromes, however, are not the only ones due to a specific sensitivity to protein. Certain types of eczema, urticaria, migraine, abdominal pain, and some forms of epilepsy, are due to a peculiar specific hypersensitiveness to food or drugs.

## **ECZEMA**

By no means are all cases of eczema due to hypersensitiveness to foods, but it appears to be the sole cause or a contributing factor in many. The medical profession is just beginning to recognize the important role food sensitivity plays in the cause of eczema. Whether we consider eczema as a unitary disease or as a pathologic skin reaction due to a variety of local or constitutional disturbances, the fact remains that symptoms may be

relieved following the application of several widely diverse measures. The dermatologist obtains good results in about 30 to 40 per cent of the cases of eczema with the use of the X-ray and local appli-The pediatrician relieves about the same per cent of children who suffer from eczema, by manipulation of carbohydrates and protein in the diet, but there is at least a third or more that do not respond to such measures. Many of these cases are hypersensitive to food or drugs, and on removing the food from their diet, or prohibiting the use of the drugs to which they are specifically sensitive, their symptoms disappear, and frequently in a very short time. Foods that cause eczema are usually common ones, such as wheat, eggs and milk, but eczema may be due to any food.

I am inclined to feel that many physicians, including the dermatologist and pediatrician, have attempted the allergic study and treatment of eczema, but have discontinued its use, not because it was incorrect in principle, but because their interpretation of positive and negative tests was wrong, or their methods of eliminating positive foods from the diet was not well done. Protein tests in eczema patients are very difficult to interpret. Immediate readings must be made and are most important. Four hour and also twenty-four hour readings must be made, however, as they are also important. Many reactions are not prominent and do not appear until after twelve to twentyfour hours, and then they are only mild patches of eczema.

In advising patients concerning the elimination of food, one must use the greatest care. For example, a patient who is sensitive to wheat must be told of the various food products in which they might obtain wheat, or otherwise poor results will be obtained because the patient is constantly taking small amounts of wheat. The treatment of food eczema is simple, namely, the removal of offending food from the diet. It is not uncommon to see a child who has suffered from eczema for years to be entirely relieved of the trying disease by the simple process of removing certain food from the diet.

Eczema is very frequently associated with hives, asthma or hay fever. It is only one of the manifestations of specific sensitization. The ability to become specifically sensitive is inherited. The father or mother may have eczema, and the son

or daughter have asthma, hay fever or hives, and the cause of all the conditions may be the same food, for example, wheat or eggs in the diet. The manifestation of the sensitivity appears on the skin in the one case, and the bronchial tubes or nose in the other.

It is difficult for patients, and likewise for doctors, to understand why they may be perfectly free from eczema for a while, and then while on practically the same diet, suffer from it. In typical allergic eczema this actually happens. The same thing, however, is true in typical hay fever or asthma patients. For example, a child may have asthma due to feathers, and sleep on the same feather pillows night after night, and yet only have an attack of asthma once every two weeks, two months, or at even longer intervals. Vaughan<sup>2</sup>, in trying to explain this condition, suggests that the chemistry of the body may be in the state of "Allergic Equilibrium" or "Balanced Allergic State." The mechanism of the equilibrium, or lack of equilibrium, of course, is not completely understood. He points out that an over dose of the same protein may disturb the balance with consequent precipitation of symptoms. For example, one may daily ingest quantities of milk, to which he is sensitized, without symptoms, but when he adds lettuce or beans, to which he is also sensitive, he will develop allergic symptoms. Neither one alone would produce trouble, but both together will. Focal infections, toxic absorption from constipation, acute infections, or nervousness, in a similar way might serve to precipitate the cause of allergic symptoms that otherwise would not appear, if the specific food was not being taken in the diet. This will also hold true in asthma, hay fever, migraine, and other allergic diseases.

The method of determining the offending food is similar to the testing done for asthma and hay fever. Details concerning the testing will not be discussed, due to the lack of time, but such methods can be found in previous articles by the writer.

Four cases relative to this condition will be briefly discussed.

Case 1. Baby B. M., female, age 5½ months. Has suffered from severe eczema over the entire body for the past three months. Her father had eczema as a child. There is no other family history of allergy.

She was normal at birth except that she had an atresia of the stomach, which had to be operated on, and was done when she was two months of age. At this time she was taken from the breast and put on modified cow's milk. The eczema developed while she was in the hospital and has continued ever since.

Skin tests could not be well done on account of the eczema being so extensive, but they were first done, as should always be in any allergic condition, and apparently wheat was positive. Intradermal tests showed the following reaction:

## WHEAT \*\*\*\*

The question naturally arose concerning the source of the wheat this child was obtaining, if wheat was the cause of her eczema. It was found that the milk she was taking was obtained from cows fed on wheat bran. On changing the milk to milk from cows fed on pasture her eczema cleared up in a very short time.

Case 2. R. T. W., boy, age 10 years, who has suffered from eczema since he was three months of age, and since he was fourteen months old has been a sufferer of a severe type of asthma.

His mother reports that his skin has never at one time during his life been entirely free from eczema.

He was sensitive to the following proteins:

Giant ragweed	***
Short ragweed	****
Western ragweed	****
Western water hemp	****
Amaranthus retroflexus	**
Amaranthus spinosus	**
Bermuda	**
Timothy	***
Johnson	**
Eggs	*
Chicken feathers	***
Goose feathers	**
Duck feathers	***
Canteloupe	****
English walnut	****
Hazelnut	****
Hickory	****
Filbert	****
Pecan	****
Olives	**
Tomatoes	***
Flaxseed	***

This boy was placed on asthmatic precautions and was desensitized with the pollens to which he was sensitive, and all of the foods to which he was sensitive, excepting tomatoes, were removed from his diet. His asthma cleared away but his eczema persisted. At the end of six months he was rechecked, and at that time tomatoes were also removed. Tomatoes were not removed in the beginning inasmuch as we had to take from his diet so many vitamin bearing foods. On the removal of tomatoes, however, his eczema cleared away in three or four days and he has been entirely free since.



FIG. No. 1.

#### INFANTILE ECZEMA DUE TO FOOD

Case 3 illustrates the association of asthma and eczema, which is common, some of the foods being the primary cause of eczema and acting as a secondary factor in the cause of asthma. It is interesting to note the quick relief from eczema symptoms on removal of the food.

Case 4. Mrs. F. P. F., a woman, age 25, who has suffered from seasonal hay fever complicated with a perennial type of hay fever, for eight years, and who occasionally has attacks of asthma. For nine months prior to coming to the Clinic she suffered with eczema on both hands, more severe, however, on the right. Various types of therapeutic agents, from ointments to ultra-violet light, had been used throughout most of the nine months, but without relief.

Her history was filled with the allergic tendency. Her father has hay fever and asthma, and her child developed asthma when but a few days old.

Skin tests revealed reactions to the following proteins:

Amaranthus retroflexus	**
Giant ragweed	***
Short ragweed	***
Western ragweed	***
Orris root	***
Wheat	*

Almond	**
Oyster	**
Peanuts	**
Lactalbumin	**
Celery	**
Reans	**

She was placed on a restricted diet, basing our judgment on the positive food findings, with complete relief from her symptoms in about four weeks.

Case 1 is typical of eczema in a young middle aged lady, the cause of which is a specific sensitivity to food. Treatment is extremely satisfactory when the food is removed from the diet. By no means are all cases due to a specific sensitivity to protein, but many are. Patients complaining of the symptom which is designated as eczema, who give a familial history of allergy (asthma, hay fever, urticaria, migraine or eczema), should be thoroughly investigated from the standpoint of allergy as a possible cause of their symptoms.

Case 2. Mrs. K. K., housewife, age 34. She has been a sufferer of seasonal hay fever for three years, and eczema for the past seven years. The eczema has been of a weeping type and for the past four years she has been required to wear a bandage on her arms.

Protein tests revealed the following:

Bermuda	**
Wheat	****
Tomatoes	****
Orris root	***
Cheese	**
Wheat leucosin	****
Duck feathers	**
Celerv	**

She came to the Clinic during the Bermuda season and desensitizing against Bermuda for her hay fever symptoms was suggested. However, she was starting on her vacation and it was not done. but she was advised to leave tomatoes and wheat out of her diet, and change her face powder to a non-orris root one.

In thirty-six hours after the foods to which she was specifically sensitive were removed from her diet she was not only free from her eczema, but also from hay fever symptoms, and since that time, being a period of four years, her eczema has appeared only on such occasions as she partook of foods to which she was specifically sensitive, which has only been five or six times. The foods to which she was sensitive were probably playing a secondary part in the cause of her hay fever

symptoms, but were the sole cause of her eczema. Her hay fever had always appeared just during the Bermuda season. She has never been desensitized, and has remained free from her hay fever, although Bermuda pollen was the chief factor.

Eczema cases due to a specific sensitivity to food must first be thoroughly and carefully tested, and after the foods to which they are sensitive are determined, great care must be used in the absolute elimination of these foods, if good results are to be obtained, but treatment is simple and is satisfactory in the majority of allergic eczemas.

## URTICARIA

Hives are most common in childhood and are a constant problem for the pediatrician, but they may occur at any age. They sometimes appear in the form of a very fine rash, spoken of as nettle rash. They may appear as large urticarial wheals, involving deeper structures than the nettle rash type. In other cases still deeper layers of the subcutaneous tissue are involved, causing rather marked swelling of the soft parts, and this is spoken of as angioneuroticedema.

The first type mentioned, nettle rash, is probably always due to a specific sensitivity to some protein, and usually the offending protein can be found. In the second type mentioned the specific cause can be found in about fifty per cent of the cases, but in the third, angioneuroticedema, the cause can be found in only about fifteen to twenty per cent.

Urticaria some times persists daily for weeks or months at a time, while in many cases it comes and goes. Some common foods, such as eggs, wheat and milk, may be the cause, but urticaria is more commonly due to uncommon foods, such as lettuce, celery, radishes, chocolate, fish, etc. Hives frequently appear a few minutes after the food is eaten but it is not uncommon for them to occur twelve to twenty-four hours after the food to which the patient is specifically sensitive, is taken.

Since many cases of urticaria are due to food sensitivity, routine testing for protein sensitivity should be done. However, in all cases careful investigation should be made concerning the possibility of absorption of toxins from foci of infection or from the intestinal tract. Treatment is frequently very simple, namely, the

elimination of the food to which the patient is specifically sensitive.

A typical case of urticaria in childhood

is here summarized:

Case 1. M. C., a girl, age 5, has had hives almost constantly, either a few or many, on the body since she was six months old. She also has suffered from some eczema and slight attacks of asthma.

Skin tests revealed the following:

Whole egg	***
Egg yolk	**
Cheese	*
Milk	*
Peas	**
Tomatoes	**
Rhubarb	**
Canteloupe	**
Bananas	**

The mother had noticed that the child was unable to take milk without abdominal distress, and from time to time had removed milk from her diet. The child was not a breast fed baby and for that reason had always been on cow's milk.

Removal of the foods to which she was specifically sensitive cleared up her urticaria in a few days time, and likewise the eczema and the tendency towards asthmatic attacks disappeared.

Case 2. Miss G. P., a nurse, age 34, has suffered from attacks of hives off and on since she was a very small child. During the last twelve years there has been associated with her hives a congested nose, which would always be worse when she would be at home and would work in the kitchen.

The following reactions show the results of protein tests:

	•
Whole wheat	****
Wheat globulin	***
Wheat leucosin	***
Coffee	****
Tomatoes	***
Lima beans	**
Hickory nut	****
Pecan	****
Filhert	****

Removing the offending foods from her diet relieved the patient of urticaria, and likewise the congested nose. In all probability the increase in her nasal symtoms when she was at home working in the kitchen were due to the fact that she would be working with flour, and probably also with coffee.

There is nothing much more distressing in adult life than chronic urticaria. Like eczema, relief may be obtained some times by purgation or by semi-starvation, even if all the foods to which they are specifically sensitive are not removed. For example, a patient may be sensitive to wheat and eggs, and have hives due to a combination of both, and have freedom from symptoms when either one is removed from the diet. One is justified in testing every case of urticaria for protein sensitivity whether it be angioneuroticedema or nettle rash, since from our experience, and the experience of other allergists, it appears that the predisposing factor in at least 66 2-3 per cent of them is a specific sensitivity to foods. We have our share of cases in which from cutaneous reactions we are unable to show any evidence of protein sensitization but this failure no more invalidates the hypothesis that specific protein sensitivity is the predisposing factor than does the failure to relieve all asthmatics, or to observe positive skin tests, disprove the allergic theory of asthma. In the cases that are not found positive it may be that they are not dependent on allergy, or it may be that we have not tested with the proper proteins, or that the refinement of the test proteins is not as it should be, or that our methods are not delicate enough.

It is well known that whole wheat protein or whole milk protein may fail to cause skin reactions, when individual proteins that enter into the composition of the wheat or the egg will produce reactions that point the way to relief of symptoms. Separate proteins of many other substances may come into use for testing and by their more accurate reactions decrease the number of cases of eczema, urticaria or migraine, for which a cause can not be found, thus making them more amenable to treatment.

#### MIGRAINE

That many cases of migraine are due entirely or in part to specific food protein is well established. A specific sensitivity to food should always be carefully considered in cases of sick headache, whether typically migraine or otherwise, who give a familial history of asthma, hay fever or eczema, and especially so if the patients themselves are bothered with such conditions. In these cases, as in other types of food allergy, it is usually difficult to elicit by history any specific reaction to the food protein. We have found that diet based on the positive food reactions found by testing will free about thirty per cent of the cases of migraine of symptoms. It

is the writer's belief that when better material for testing is made and more delicate methods for testing are used, that in many cases in whom we find negative reactions today, positive reactions will then be obtained, and treatment based on such positive reactions will free the patients from symptoms.

The following cases will serve as examples:

Case 1. Mrs. M. P., age 36, came to the Clinic complaining of periodic attacks of severe headache, usually occurring on one side of the face and head, and also practically always associated with nausea. The attacks would last from a few hours to two or three days.

Her mother had asthma, her maternal grandmother had hay fever, and one bro-

ther had hives.

Protein tests revealed the following:

Wheat	***
Celery	**
Lettuce	***
Shrimp	**
Cauliflower	*
English walnut	****

She was advised to absolutely eliminate all the foods to which she was found sensitive, from her diet, and on doing so she has remained free from her headaches during the past two years.

Case 2. Mr. H. G., age 22, came to the Clinic complaining of:

- (1) Frequent head colds during the winter since 12 years of age.
- (2) Perennial congestion of the nose for the past 2 years.
- (3) Migraine since 12 years of age.

Family History: Maternal grandmother had migraine, mother had migraine, one maternal aunt with migraine, one sister with hay fever and asthma, one brother with hay fever, one brother with migraine, and a nephew with migraine.

Protein tests revealed the following reactions:

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* *
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Cattle hair	**
Cat hair	*
Whole wheat	***
Flaxseed	*
Blackberry	*
Turnins	*

The elimination of the animal epithelial, and desensitizing with the pollens relieved his hay fever. Removal of the foods from his diet, to which he was specifically sensitive, has entirely freed him from migraine during the past seven months, which has been the first freedom he has had during the past twelve years.

## ABDOMINAL PAIN DUE TO ALLERGY

Abdominal pain due to specific sensitivity to food, both in adult life and children, is much more common than generally considered, and is usually overlooked and ignored by most physicians. Children frequently complain of abdominal pain after eating certain articles of diet, such as eggs, wheat and milk. In some cases in children, in which the diet is not complicated, it is not difficult to detect the food that is causing the pain. However, in adult life where such foods are incorporated in many different ways in the diet, it is quite impossible at times to be sure which foods cause the discomfort. This is especially true of wheat, which may be the cause of severe abdominal pain of many years duration.

Rowe' reports several cases of abdominal pain due to allergy, and states that he believes abdominal allergy is very much more common in both mild and severe forms than is generally appreciated. The writer has seen cases so sensitive to eggs that a small piece of cake or cornbread in which eggs were used in baking, would cause marked intestinal symptoms, even to the extent of producing diarrhea.

Food intolerances due to sensitization to common foods, such as eggs, wheat and milk, are often present in babies and very young children. In like manner sensitization to any other food, even that of foods taken by the mother and obtained by the baby through the mother's milk, causes distress. Food sensitization may develop any time in life, as we have observed cases in whom symptoms did not develop until the late forties or fifties. We have observed a number of cases of abdominal pain simulating colitis, appendicitis and other abdominal conditions, due to a specific sensitivity to one or more foods, both in children and adults. Physicians should not take too lightly the history sometimes given by patients that certain foods cause abdominal pain, nausea or diarrhea, and parents should be careful about forcing children to eat food that is disliked by them, for fear they may be specifically sensitive to such food.

Case 1. M. C., a girl, age 5, has suffered severely from abdominal pain with vomiting whenever eggs were added to her diet since she was eighteen months of age. At times the nausea would be associated with diarrhea. The mother soon learned that eggs could not be tolerated and watched carefully that they were eliminated from her diet. On a number of occasions she obtained food containing small amounts of egg and developed symptoms. At four years of age she developed asthma, and was brought to our Clinic for the purpose of determining the cause of her asthma.

Protein tests revealed the following positive reactions:

Duck feathers	***
Goose feathers	****
Cat hair	**
Giant ragweed	****
Short ragweed	**
Western ragweed	***
Eggs	****

In this case the egg was evidently the sole cause of her abdominal pain and diarrhea, and if it remained in the diet, would be, in my judgment, a secondary factor in the cause of asthma. Keeping the diet free from eggs and eliminating the animal epithelial has given the patient complete relief from both asthma and abdominal pain.

Case 2. Mrs. C. M. M., a woman, age 54, complained of severe abdominal pain associated with hives and hay fever. The attacks were periodic in type and were many times so severe that morphine had to be given for relief. Periodic attacks of abdominal pain had persisted for the past six years, but during the last year were so severe she had lost fifty-four pounds in weight. An exploratory laparotomy was done, as a surgeon in one of our larger clinics in the East suspected cancer, but found no abnormality in the abdomen.

Skin tests revealed:

Wheat	****
Giant ragwood	****
Short ragweed	****
Orris root	****

Removal of wheat from the diet has given this woman entire freedom from her pain and hives during the past sixteen months. She has regained her weight entirely, and desensitizing with pollen has eliminated her hay fever.

#### **EPILEPSY**

There are a number of authentic cases of epilepsy on record whose trouble is entirely due to protein sensitization. It is my judgment that a case of epilepsy with an ancestral history of hay fever or asthma, or who suffers from such conditions himself, should be carefully studied from the standpoint of food sensitization as a possible cause of the epilepsy. In our records are a few cases in which it seems quite possible that food is playing a definite part in the cause of the epileptic attacks.

Case 1. P. J., age 14, came to us on account of his asthma, from which he had been suffering since he was two years of age. At seven years of age he developed attacks of epilepsy and hives, which have gradually become more severe.

His father had asthma and his paternal grandmother had hay fever. He had one brother with eczema.

On testing he was found sensitive to the following:

Duck feathers	***
Goose feathers	***
Chicken feathers	**
Bermuda	**
Eggs	***
Milk	**

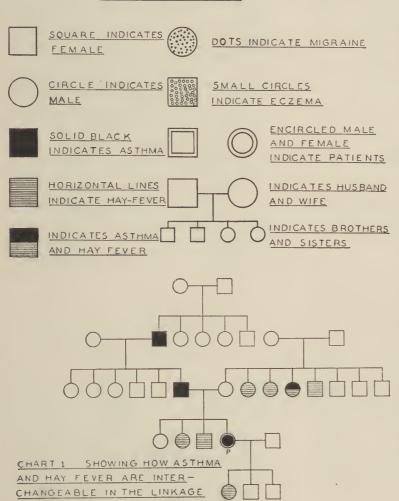
Removal of the foods from his diet has eliminated the hives and decreased the number of epileptic attacks.

Ralph H. Spangler states that the etiology of essential, or so-called idiopathic epilepsy, points more and more, as recent investigations are recorded, to the probability that the immediate cause of epileptic convulsions arises from a disturbance of metabolism, and also states that the fact that allergy results in attacks of epilepsy in some individuals cannot be denied and certainly is worthy of consideration when we come to the treatment of this little understood and perplexing symptom complex of disturbed metabolism.

Clinically, the predisposing factor in many cases of eczema, migraine, urticaria, certain forms of abdominal pain, and at least a small per cent of essential epilepsy, is a specific sensitivity to food protein. In an unpublished paper, which will appear in the American Journal of the Medical Sciences, the writer offers evidence in which it appears that biologically, in the

linkage, asthma, hay fever, urticaria and migraine are interchangeable. The following three family trees were given in the article mentioned, to show the relation between asthma, hay fever, eczema and migraine.

## KEY TO CHARTS



In the pedigree as shown in Chart 1, one will note that the grandmother gave birth to three daughters and three sons, only one of whom developed an allergic condition, this being a daughter. This daughter married a man who did not manifest any form of allergy. There were three sons and one daughter born, and of the four, one son had hay fever, the daughter had hay fever, and the other son had asthma. This asthmatic son mated with a woman without allergic symptoms. From the union we find two daughters and one son, of whom only the son showed evidence of allergic symptoms,

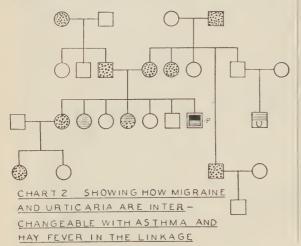
which were manifested in the form of hav fever. It is also noted that on the grandfather's side of the family there were two uncles with hay fever, one with hay fever and asthma, and an aunt with hay fever. There is a possibility that the paternal

grandfather, inheriting from the same germ plasm that his brothers and sisters did, might have developed allergic symptoms if he had lived longer, as he died in the fifties. From the ancestral tree it certainly appears that asthma and hay fever are interchangeable in the linkage.

In Chart 2 we find a patient whose father and mother both had migraine and whose paternal grandmother and maternal grandfather also had migraine. This patient has five brothers and one sister, of whom one brother has seasonal hay fever, one brother has perennial hav fever and migraine, and one brother has migraine. One brother is married and his wife has no allergic symptoms. From this union we find two males, one of whom has migraine. The patient who is an asthma and hay fever sufferer has one paternal uncle with migraine and one paternal aunt with migraine. The paternal aunt with migraine has a daughter without allergic symptoms, but she is a child and has lots of time yet for symp-

toms to appear. One paternal aunt has no symptoms, but she has a daughter with seasonal hay fever and hives. This aunt is still a young woman and has plenty of time for allergic symptoms to appear, which would complete the chain. It will be noted that the migraine grandparents produced children with migraine and these children produced hay fever, migraine, urticaria, eczema, and asthma in their children. From this pedigree, and from many other similar cases, we are led to conclude that asthma, hay fever, migraine and urticaria are interchangeable in the linkage.

This case is an interesting one since from the history we find that our patients come from common ancestors six generations ago. The patients are four in number, a father with eczema, a mother with seasonal hay fever, and from this union came three children, one with seasonal hay fever, eczema and asthma, and another, asthma. The third child, a boy, died of diabetes when an infant. The father of the two children who are pa-



tients had a brother with asthma, two brothers with eczema, and a sister with asthma, and this sister gave birth to two boys with eczema. The mother of the father was an asthmatic. The grandfather of the mother of our two children who are patients, had asthma, but we can find no history in the mother or the father of the mother of our two allergic children. However, this mother without symptoms might have developed symptoms if she had lived longer, as we have seen patients who developed typical allergic symptoms as late as 75 years of age. The

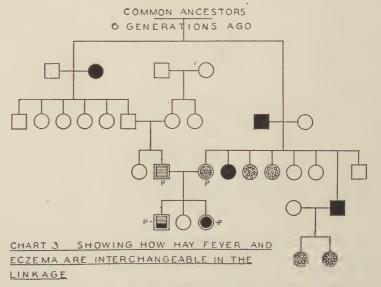
allergy in this family is being transmitted from both sides, and they gave a definite history of being relatives, knowing that they are from the same grandfather six generations ago. From this tree, and others which we have, we are led to believe that asthma, hay fever and eczema are interchangeable in the linkage.

If asthma, hay fever, and certain forms of eczema, hives and migraine, are interchangeable in the linkage, it appears to be excellent evidence that they have a common cause, namely, a specific sensitivity to protein.

## METHODS OF TESTING FOR FOOD SENSITIVITY

In testing for food sensitivity, the dermal test is the one of choice, but there are certain cases that would be entirely overlooked if intradermal tests were not used. From our experience we are led to believe that food allergy frequently exists in patients who give no reactions to specific foods, even on testing and retesting. It has been our experience that children who are sensitive to food protein give much clearer cut reactions than do adults, due probably to the inactivity of the skin of those over forty years of age.

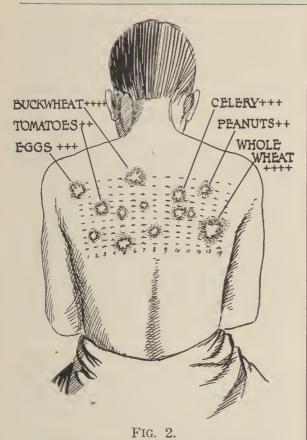
The reading of skin tests should be very carefully done. There should be a thirty-minute reading, a four hour reading, and a twenty-four hour one, and it must be remembered that many positive reactions are not marked, as we find in the case of pollen or animal dander sensitivity. Those who are not skilled in protein testing frequently doubt the value of skin testing in the diagnosis of allergic dis-



eases, especially in the diagnosis of the ones we are discussing today.

## TREATMENT

Treatment in those cases found specifically sensitive to food, is absolute elimination of those foods from the diet. If a large number of foods are found positive, one must be careful to see that the patient has a well rounded diet left. That is, in the diet there should be at least one



AN EXCELLENT AREA OF THE BODY FOR APPLYING FOOD PROTEINS IN DERMAL TESTING.

starch, one protein, one or two vegetables and fruits, and at least one fat. In those cases who are suspected of a specific sensitivity but who are found non-sensitive from a standpoint of tests, eliminative diets on general principles must be used. In case of eczema, the common foods, eggs, milk and wheat, should be first eliminated. In case of hives, the uncommon foods, such as the sea foods, celery, lettuce, nuts, etc., should be first eliminated. One is justified at times in using an eliminative diet that is rather severe for at least a week, and then begin to add one food at a time and have the patient observe the effect of each specific addition, and to exclude those foods that cause trouble.

Food sensitization undoubtedly is the cause of symptoms in many cases of the syndromes we have just discussed. The medical profession and the laity must recognize its importance. I believe the future will unfold to us much more concerning the role it plays in the production of such diseases.

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# DIAGNOSIS AND MANAGEMENT OF CORONARY THROMBOSIS

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Coronary thrombosis is gradually becoming recognized as a cardiac disease of frequent occurrence. I will not take the time to speak of all the pioneers in calling attention to its fundamental diagnostic symptomatology. Suffice it to mention the names of such men as Dock, Herrick, Smith, Hamman, and Parkinson who have contributed much to our modern knowledge of this condition.

My object in discussing the subject is to call attention to a few of the outstanding points in diagnosis and early management of these cases. Our attention is constantly called to the sudden death of some prominent individual from acute indigestion or an acute heart attack. No doubt the great majority of these die of coronary thrombosis and death is sudden because the infarct involves a large portion of the myocardium.

In approaching the subject, we must consider coronary disease in its broadest sense. First, it is a common condition in the later decades of life. It occurs in a large percentage of those having arteriosclerosis and is just as likely to be present in those with a comparatively low blood pressure as in those with hypertension. A careful study of your cardiovascular cases will reveal many with extensive arteriosclerosis with low blood pressure. Careful palpation of the arteries may reveal all the evidences necessary, but examination of the retinal vessels will add many having arteriosclerosis to your list.

Coronary disease may also be the result of an acute infection producing a localized endarteritis resulting in coronary occlu-Rheumatic endocarditis may involve the aortic ring and may extend from the valves to the mouths of the coronaries, producing a slowly progressive occlusion resulting in death by infarction. Syphilis often involves the aortic valves and extends into the aorta and coronaries, terminating in a similar end result. These conditions occur with moderate frequency but the greatest number are recruits from that great group of individuals having arteriosclerosis. This, in the course of time, leads to all degrees of coronary degeneration and gradually interferes with myocardial blood supply and efficiency.

Many of these cases develop the angina syndrome that may annoy the patient greatly for many years. In some of them we recognize the focal infections as a factor in aggravating the symptoms of angina, and we have reason to believe that these focal infections play a part in the production of degenerative processes in the coronaries. Quite frequently we find that removal of infected teeth or tonsils relieves the patient of the angina syndrome. The relief, however, must not be regarded as permanent; nevertheless it may last over a period of six or seven years, as in one of my cases. A certain percentage of cases of coronary thrombosis occur among angina patients, but by no means are all so afflicted. In coronary sclerosis a certain number develop a calcification that becomes extensive and finally injures the intima and from this point a thrombus spreads and results in a thrombosis with infarction. Once in a while acute inflammation of the vessels and surrounding tissues occurs, producing the same final result.

### DIFFERENTIAL DIAGNOSIS

In view of the fact that many cases of coronary thrombosis develop in the patient with angina, it is very important to differentiate very promptly between the two conditions. In discussing this phase of the subject I want to emphasize the fact that arteriosclerosis is the most common basis for coronary disease and that it is hereditary, or rather, constitutional in origin. In a series of three hundred cases of arteriosclerosis, 68% gave a positive history of the same disease in one or more ancestors, and another 7% other

constitutional diseases. The course of arteriosclerosis usually shows the normal pressure period up to 30 or 35 years of age. This is followed by a fluctuating period that lasts from five to ten years. The period of persistent and progressive hypertension begins at 40 or 45 years of age with beginning changes in the arteries and cardiac hypertrophy. Arteriosclerosis without hypertension begins about the same period but produces less changes in the heart and kidneys than the hypertensive type, or at least they are apt to manifest themselves later. The final results of arteriosclerosis are cerebral arteriosclerosis and apoplexy, angina pectoris, coronary thrombosis, heart failure, renal sclerosis with uremia, and in a certain number diabetes closes the picture of this enormous group of cases. Differential diagnosis between angina and coronary thrombosis is very important though both present a similar fundamental pathology.

Chest pains are common to both conditions. In angina the pain is induced by effort and emotional disturbances, particularly anger. In thrombosis pain may occur with effort or excitement but often develops when the patient is at rest or even asleep. The site of pain in angina is precordial and most frequently radiates into the arms, sometimes into the neck and jaws, or beneath the left scapula. In thrombosis the pain is nearly always substernal and does not radiate as often or as far as in angina. Quite often the pain may be located in the epigastrium and this location, with the accompanying symptoms, becomes a diagnostic pitfall. The duration of pain is important because in angina it usually lasts only a few moments, relief being obtained by rest and relaxation, while in coronary thrombosis the pain may last for hours or even days and usually is relieved only by repeated doses of morphine. The patient with the angina symptoms usually remains quiet in a fixed attitude until distress begins to subside, while the patient with thrombosis is restless and nervous and may insist on being up and down to obtain relief. An attack of angina produces very little, if any, shock, while this may be severe in thrombosis, depending on the extent of the cardiac infarction. Vomiting rarely occurs in angina but is rather frequent in thrombosis. In examination of the patient we find little or no change in the pulse of the angina case, but it is apt to be small, rapid and occasionally irregular in thrombosis. The blood pressure is nearly always lower in thrombosis, while in angina attacks it is nearly always increased to a considerable extent. Heart sounds in angina are unchanged, while in thrombosis they are muffled and gallop rhythm is often noted. In a few hours

a friction rub that is of great diagnostic importance occurs close to the sternum in the third or fourth interspace. About the time the friction rub occurs there is apt to be a slight rise of temperature that often reaches 101° in a few hours. A leukocytosis results and reaches 18,000 to 20,000. These last three findings do not occur in angina and when found are most confirmatory evidence of coronary thrombosis. Soon congestive heart failure begins to manifest itself by basal congestion, and a little later hepatic engorgement is noted, especially in those with extensive infarction, because myocardial efficiency becomes seriously involved.

With these fundamental differential points in mind, one should not fail to recognize cardiac infarction, especially with the last symptoms well established. However, I want to emphasize the great importance of considering coronary thrombosis in the arteriosclerotic with epigastric pain. Look for a drop in blood pressure, a wobbly pulse and the pericardial friction rub before concluding that you have an acute abdomen needing surgical attention. Surgery in cases of cardiac infarct has frequently been done in the past. but with a clean-cut array of symptoms such as we have at present, such an error is inexcusable.

Before leaving the question of diagnosis. I want to call attention to a case that recently came under observation. It was one of aortic stenosis of the rheumatic type, where the thickening of the valve ring and its extension to the aorta has gradually produced occlusion of the coronary vessels, causing persistent cardiac pain, at first with exertion, persisting longer afterward than the angina pain, and gradually becoming continuous even with complete rest. The pain finally required morphine for relief and at last the blood supply to a portion of the myocardium failed and infarction took place, resulting in death. This same picture presents itself when syphilitic aortitis finally causes complete occlusion of the coronary orifices.

In some cases of coronary thrombosis hernia, or bulging of the ventricular wall, results from the cardiac infarct. Recently it was my good fortune to discover such a case by means of X-ray of the heart. This patient gave a typical history of all the subjective symptoms mentioned, with slight rise of temperature, congestive failure, and tenderness over the liver, necessitating absolute rest in bed for about a month. The diagnosis of an acute cold and bronchitis had been made. During my observation the patient had a minor secondary extension of cardiac infarct requiring ten days absolute rest in bed. Her blood pressure ranged in the neighborhood of 180 systolic, 105 diastolic.

The usual location of coronary thrombosis is in the anterior descending branch of the left coronary, though any of the coronary branches may be involved.

### THERAPEUTIC MEASURES

The therapy and management is of greatest importance the first few days and much will depend on an early correct diagnosis. The treatment for chest pain in the arteriosclerotic is nearly always nitro-glycerine, which is of no value in coronary thrombosis because in this condition the blood pressure is already low on account of myocardial failure and the nitro-glycerine is liable to lower it still further. In view of this and the danger of extending the thrombus by dilating the coronary vessels, its use must be considered at least questionable, if not absolutely dangerous. In one of my cases the blood pressure dropped from 170 to between 80 and 90, as a result of infarction. I have always felt that if I had followed my first impulse and given nitro-glycerine, I might have produced sudden death.

Morphine and absolute rest is the first therapeutic measure to be instituted. The morphine may have to be repeated at first and may be necessary at intervals for several days in order to obtain continued relief from pain. After pain has subsided rest must be insisted on for a period of at least a month and occasionally even three months may be necessary, depending on the reaction of the heart to the infarction and re-establishment of the circulation. After the disappearance of pain and of suspicion of new minor extension of infarcts, the use of digitalis must follow. The moderate tonic dose

should be given over a considerable period of time. I think it important to avoid the full effect of digitalis, because of the danger of the strong contractions sometimes induced resulting in extension of thrombi or the production of emboli that might cause new infarctions. After a certain period fibrosis becomes well established and we must then watch the patient's circulatory efficiency as in any cardiac cripple, regardless of the cause.

## SUMMARY

- 1. Coronary disease in its broadest sense is considered, with the conditions leading to coronary degeneration.
- 2. That arteriosclerosis, the most common basis for coronary disease, is hereditary or constitutional, is shown by statistics.
- 3. Differential diagnosis of coronary thrombosis, angina pectoris and aortic stenosis is given.
- 4. Therapeutic measures are discussed with a warning against the use of nitro-glycerine in cases of coronary thrombosis.

# THE OUTSTANDING S C I E N T I F I C ACHIEVEMENT OF THE YEAR

For his work in an investigation of the ductless glands and particularly in his isolation of pituitary hormones Dr. Oliver Kamm, director of chemical research of Parke, Davis & Company, manufacturing chemists, has been awarded the \$1,000 prize by the American Association for the Advancement of Science for the "most noteworthy contribution to science presented at the annual meeting."

Some 2,000 scientists delivered addresses at this meeting, which was held in New York. The award was announced on January 2, by Dr. Henry Fairfield Osborn, president of the Association.

The isolation of two hormones from the posterior lobe of the pituitary gland, as revealed by Dr. Kamm, is held by chemical scientits to be equal in importance to the isolation of insulin and the discovery of adrenalin.

Dr. Kamm isolated the alpha and beta hormones of the posterior pituitary after twelve years' work in the Parke-Davis Research Laboratories. This, incidentally, is the first time that anyone has demonstrated that one gland might contain more than one hormone. The alpha hormone is the so-called oxytocic principle. The beta hormone is the blood-pressure-raising principle. Dr. Kamm also showed definitely that the beta hormone has the power of controlling the excessive output of water. His paper before the American Association for the Advancement of Science showed that it has been a mistake to refer to the so-called "renal activity" of pituitary extracts.

The beta hormone does not act upon the kidneys, but controls the utilization of water by the individual tissues of the body.

The usefulness of this beta hormone is now under investigation in diseases characterized by excessive loss of water, such as diabetes insipidus, burns, cholera, other infectious diseases, and surgical shock.

Dr. Kamm points out in his prize-winning paper that much depends upon the ability of the body tissues to retain and utilize water. He said:

"The dangerous symptoms following surgical anesthesia are due mainly to the dehydration of tissues, and the use of beta hormone prevents such desication.

"Following extensive body burns, it has been thought that death results from the absorption of toxins. According to the newer view, however, it may be the result of the desiccation of the body tissues. In such cases, if this were proved true, the use of a drug like the beta hormone might possibly save life by favoring the retention of water in the tissues. It is conceivable that something quite startling might flow from this idea in cases of serious burns.

"Water-intoxication, with its alarming symptoms leading even to unconsciousness, is very rare. The other extreme, that of water-poverty, is rather more common, and is characterized by extreme thirst and excessive elimination of water. This condition, known clinically as diabetes, insipidus, is relieved at least temporarily by pituitary extract, and it has just been found that the beta hormone possesses this remarkable action.

"Although other factors are also involved, it appears that proper hydration is needed for the growth of tissue. In this respect, few of us are absolutely normal. We find that some individuals are extremely sensitive to the action of the beta hormone—they are the 'physiological wets'; while others readily return to normal after administration of the hormone—they are the 'physiological drys'.

"It has just been observed that the fleshy type of individual is almost invariably of the wet type, whereas the slender, scrawny person is usually a dry. The suggestion is therefore made that we have here possibly one of the important explanations as to why the former is fleshy and why the latter fails to gain weight readily in spite of an excessive intake of food and water. It is apparent that the portly person who is desirious of reducing must cut down on his liquid intake, as well as on his intake of sold food. As for the scrawny person, gland therapy may possibly be indicated, but here the work is still in the investigative stage and conclusions cannot be drawn.

"Only a very few grams of highly purified alpha and beta hermones are as yet available. Commercially they are known as pitocin and pitressin, respectively. Although the Parke-Davis Research Laboratories use the methods of micro-analysis, a single laboratory experiment requires the pituitary glands of 50,000 cattle."

In prefacing his address, Dr. Kamm told the American Association for the Advancement of Science, that:

"Man is on the threshold of a great chemical era. As the number of products derived directly from nature is decreasing, the field of synthetic possibilities is continually increasing, and as a result, the possibility of producing new or related drugs will continually increase."

# ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER AT DAYTON.

The annual meeting of the American Association for the Study of Goiter will be held this year at Dayton, Ohio, on March 25, 26 and 27. The primary object of this association is to bring together each year men who are especially interested in the study of goiter and its associated problems. Members of state and provincial medical societies are eligible and cordially invited to participate as attending members.

The 1928 meeting, which was held at Denver, was a decided success. Professor B. Breitner of the Von Eiselsberg Clinic of Vienna and Dr. Gulbrand Lunde, professor of biochemistry of Oslo, Norway, were the foreign guest speakers. Drs. H. S. Plummer, S. F. Haines, J. dep. Pemberton and William Boothby of the Mayo Clinic held clinics and presented papers Among the other contributors to the program were W. Blair Mosser of the University of Pennsylvania; W. H. Cole, N. A. Womack and S. N. Gray of Washintgon University, St. Louis; A. E. Hertzles, Halstead, Kansas; J. L. DeCourcy, Cincinnati; Allen Graham, Cleveland; H. M. Clute of Lahey Clinic, Boston; J. Tate Mason of Mason Clinic, Seattle;

and Willard O. and P. K. Thompson of the Massachusetts General Hospital Thyroid Clinic.

The first day of the Dayton meeting will be given over to diagnostic clinics in the morning and several short papers during the afternoon chiefly concerned with recent experimental work. On the second day, operative clinics will be held at the Miami Valley Hospital, St. Elizabeth's Hospital and at the Soldiers' Home Hospital. The afternoon of the second day and the morning and afternoon of the third day will be given over to the presentation and discussion of scientific papers.

The headquarters will be at the Hotel Miami. Dr. William A. Ewing is President of the Montgomery County Medical Society under whose auspices the meeting is to be held. Dr. E. M. Ruston is the General Chairman of the Committee on Arrangements. Dr. H. C. Haning is Chairman of the Hotel Committee. All communications in regard to hotel reservations should be addressed to Dr. Haning at the Reibold Bldg., Dayton, Ohio.

## PARKE, DAVIS & COMPANY APPOINTS GENERAL MANAGER

Dr. William Lescohier has been appointed general manager of Parke, Davis & Company, according to an announcement made public on January 10 by Oscar W. Smith, president of the company. Dr. Lescohier has been connected with the company for the past twenty years and has most recently occupied the position of assistant to the president. After graduation from the Detroit College of Medicine in 1909 he entered the company's employ as a member of its scientific research staff. In 1918 he was placed in charge of the production of serums, vaccines, antitoxins, and other biological products.

In 1925 he became director of the Department of Experimental Medicine, and in that capacity was in constant touch with physicians and scientific workers in the leading hospitals and medical colleges of the country.

Dr. Lescohier is a Fellow of the American Medical Association and belongs to the American Therapeutic Society and other scientific organizations.

In professional circles the appointment of a physician and research scientist to this important post will doubtless be noted with interest, as the development and manufacture of highly scientific products for physicians' use has constituted the most important division of the company's business ever since its founding, more than sixty years ago.

Parke, Davis & Company are the world's largest makers of pharmaceutical and biological products, with home offices and laboratories in Detroit, Michigan, and with branch laboratories in a number of foreign countries.

Parke, Davis & Company announces the appointment of Dr. Louis Klein as Promotion Manager and Mr. Ralph G. Sickels as Advertising Manager. Both men have been connected with the company for a number a years, Dr. Klein as manager of the department of medical service, and Mr. Sickels as a member of the advertising staff.

# THE JOURNAL

OF THE

## Oklahoma State Medical Association

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief Barnes Building, Muskogee, Okla.

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Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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## EDITORIAL

## EPIDEMIC MENINGITIS

Rather severe outbreaks of epidemic meningitis were reported in various parts of Oklahoma in January. Twenty-six deaths were reported in Muskogee County from this disease. It is said only eight of these received specific treatment with serum. It is said the reports from Caddo county, where a similar outbreak occurred, were much more favorable as to mortality. It is charged that the high mortality rate in Muskogee county was due to two factors: Failure, on the part of the family, in many instances, to call a physician until too late for any form of treat-

ment to avail, and, lack of appreciation on the part of the family physician, in some instances, to use proper and modern methods of treatment. Some of these cases were markedly virulent and rapid in their course.

Probably with the exception of the antidiphtheritic serum in the treatment of diphtheria, no one thing is so effective, seemingly miraculous, often times in its effects, as is the use of anti-meningococcic serum in the treatment of epidemic meningitis. This was thoroughly demonstrated in widely scattered localities in Oklahoma more than fifteen years ago and of course the prompt and efficient administration of this measure in various army hospitals and cantonments during the world war and its consequent brilliant results is already a well known matter of medical history.

There is hardly any excuse, especially after such an outbreak has been widely advertised, for any physician to fail either to make a clinical diagnosis in most cases, or to strongly suspect the existence of the disease when in its presence. When once this is determined there is only one proper course to follow and that is the immediate administration, intraspinally, of the specific and curative serum.

## STOP! LOOK! LISTEN!

The Oklahoma State Medical Association will hold its annual meeting in Oklahoma City, May 27, 28, 29, 1929, and a record breaking attendance is expected.

The new medical school building of the University of Oklahoma has been tendered as a meeting place for the various sections as well as an auditorium to care for the general sessions. This will enable you to have easy access to the various sections and go from one place to another without getting from under cover of one roof.

You will see your friends, your classmates and people who have the same problems to meet that you have and you can discuss their various problems. These are as big drawing cards as the scientific part of the meetings.

Monday, May 27th. will be started off with a meeting of the Councillors at 5:00 P. M., and House of Delegates at 8:00 P. M. Thus separating the executive and political part and getting all that out of the way so that nothing will detract from

the scientific and clinical feast which starts on Tuesday at 8:00 A. M.

There will be an innovation in the program which the committee has wisely chosen, to-wit: from 8:00 A. M. to 12 on Tuesday and Wednesday there will be clinics held at the various hospitals here.

From 2:00 to 6:00 there will be meetings of the various sections with good scientific papers.

Tuesday evening from 6 to 8 will be held banquets of Reserve Officers, fraternities, schools, and the general session and President's address.

Wednesday evening from 8:00 to 10:00 general session and scientific orations. After that will be the President's reception and ball which will relieve you of any mental indigestion you may have incurred in the two days of intensive work as there will not be one idle moment.

LEA A. RIELY.

# THE 1929 MEETING OF THE STATE SOCIETY

Evidence is accumulating that the next meeting of the State Association will be the most successful in its history. In the first place interest is more wide spread among the physicians of the state and, barring some unforseen circumstance, the attendance will far exceed any heretofore registered.

Verbally and by correspondence, doctors have expressed a desire to be present and are asking particulars. The scientific exhibits will be especially good and much information will be gained by a visit to them. Probably the best part of the program will be the clinics held at the several hospitals, and everyone interested is assured of a splendid program in this respect. Active and earnest members of the profession in Oklahoma City have this feature in charge and there will be ample material well presented. Oklahoma City is used to conventions, hotel facilities are ample and the local men are going to lay off from work to see that every part of the program is well conducted. A pleasant and profitable time "will be had by all."

A detailed program will appear in the May issue of the Journal.

Dr. A. D. Young.

## Editorial Notes -- Personal and General

DR. C. A. THOMPSON, Muskogee, was on the sick list two weeks in January and February.

DR. J. H. CASH, Stillwater, is ill at his home, following a stroke of apoplexy two months ago.

DR. O. J. GEE, formerly of Ardmore, has located at 416 Medical Arts Building, Oklahoma City.

CYRIL, OKLAHOMA, wants a physician. Information may be had by writing Our Drug Store, Syril, Oklahoma.

DR. P. F. ROBINSON, for many years a physician in Madill, was made Marshall County health officer by Dr. O. O. Hammonds, receiving his commission January 16th.

DR. F. R. SUTTON, Oklahoma City, has presented the Library of the School of Medicine with a collection of his books, some 140 volumes, late texts—principally surgery.

THE NEW BAPTIST HOSPITAL, Muskogee, was opened to the public, Sunday, February 3, with an appropriate program. Over two thousand visitors passed through the building at that time.

HUGHES-SEMINOLE Medical Society met January 17, at Holdenville, and the following officers were elected for 1929: Drs. A. L. Davenport, president; W. M. Taylor, vice president; T H. Diggs, secretary-treasurer.

OKLAHOMA SKIN AND CANCER CLINIC, successors to Drs. Lain and Roland, announces organization as of January 1st, housed in the Medical Arts Building. The members consist of Drs. E. S. Lain, M. M. Roland, W. E. Eastland, Chas. E. Davis and D. G. Duncan.

At the meeting of the OKLAHOMA STATE MEDICAL ASSOCIATION to be held in Oklahoma City May 27, 28, 29, 1929, the annual play of the Oklahoma State Medical Golfing Association will be held on Monday, May 27, over the Oklahoma City Golf and Country Club course. The match will be a round of 18 holes medal play. The winner to receive a trophy signifying championship for the year 1929. There will also be appropriate prizes for several special handicap matches. All matches to be played with a contestant. Please be prepared to give your "home handicap" to the starter at the first tee.

PENNSYLVANIA MEDICAL JOURNAL, a highly ethical publication accepting no advertising of pharmaceutical compounds not favorably passed by the Council on Pharmacy and Chemistry of the American Medical Association, has very much a problem on its hands. Pennsylvania has several county medical society bulletins which accept questionable advertising, merely to increase their income, advertisements not accepted by their state journal. This has produced a problem. If these bulletins fully realize their function their first act probably would be establishment of a rule to submit practically every pharmaceutical advertisement offered them to the Council before inclusion in their publication.

DR. L. CHESTER McHENRY, Oklahoma City, who has just finished a year's course in otolaryngology at the University of Pennsylvania, and four months as assistant in the Chevalier Jackson Bronchoscopic Clinics, is associated with Dr. D. D. MeHenry, Medical Arts Building, Oklahoma City.

## THE SMOKE HOUSE POET'S DREAM

The smoke house poet was whooping it up
In the Malamute saloon;
He was rich in funds, and carried a bun
As rare as a day in June.
Then, over the ale, his face turned pale,
He sank, and I heard him snore;
And, this is the dream that the poet dreamed

He sailed with the Ancient Mariner,
On a search for the Holy Grail,
While the chaplain read o'er the rotting dead
The Ballad of the Readin' Gaol;
And Willie the Weeper sat by his side,
And held in his palsied hand

With his face on the bar-room floor.

His chimney swipe, and the lay-out pipe Of the Girl with the Blue Velvet Band.

The gambling man from Yucatan
While waiting for a bet,
Sat idly there in the vacant chair
With the Girl that Men forget;
Gunga Din, with his bag of skin,
Watered the motley crew,
And Steamboat Bill with a lust to kill
Was shooting at Dan McGrew.

The Lady who didn't understand
And the Man who lived in Hell
Were both on a drunk with the measly skunk
Who had wronged our Little Nell;
And brave Sam Bass, from Eagle Pass,
Was tipping a shot of rye
With the dirty Coward that shot Mr. Howard,

And the girl called Alice Frye.

After the Ball in the darkened hall,
The Smoke House Poet 'rose,
With a head full of aches, and a thousand snakes
Wriggling before his nose.
He hastily felt in his money-belt—
Oh, this tale is sad but true!
The woman that kissed him and pinched his poke
Was the lady that's known as Lou.

#### DOCTOR J. E. BILLINGTON

-Captain Billy.

Dr. J. E. Billington, pioneer physician of Enterprise, died at his home January 12th, following an attack of heart disease. Dr. Billington was born at Blanville, Kentucky, April 8, 1871. He was 58 years of age. He was graduated from the College of Physicians and Surgeons of Nashville, Tenn.

Funeral services were held January 13, the Rev. J. P. Martindale officiating. Burial was made in the Enterprise cemetery.

Dr. Billington is survived by his wife, a daughter, and two brothers.

## DOCTOR J. O. GRUBBS

Dr. J. O. Grubbs, North McAlester, died January 16, 1929, after a brief illness from pneumonia.

Dr. Grubbs was 66 years of age. He was born at Irvine, Kentucky, in October, 1862. His preliminary education was obtained in the common schools. He graduated from Missouri Medical College, St. Louis, in March, 1887. Nearly three-fourths of Dr. Grubbs' long life was spent as a citizen of McAlester.

Funeral services were held January 18, conducted by Rev. E. F. Winkler, pastor of the First Christian Church. Burial was in Oak Hill Cemetery.

Dr. Grubbs was a staff physician at the Albert Pike Hospital, at McAlester; and a member of the Royal Arch Masons and the Knights Templar.

He is survived by his wife and four sons and a daughter.

## TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

Pathological Studies On Tuberculosis Enteritis. Benjamin Golberg, Henry C. Sweeney, and Robert W. Brown, American Review of Tuberculosis, December, 1928.

A few of the most important complications of tuberculosis enteritis are perforation, generalized, and localized peritonitis, stenosis, adhesions, diverticula, etc. The findings in 230 autopsies are reported. There were 184 (80%) having enteritis, 119 (51.8%) with severe lesions and 65 (28.2%) with early and unusual lesions. There was one with ulcers from the stomach to the rectum. The duodeuum was involved in 7 (3.8%) lesions from jejunum to sigmoid in 39 (21.2%). From the upper ileum to the sigmoid there were 30 (13%). The greatest number were those extending for a short distance on each side of the ileocecal valve 43 (18.7%). There were two cases with lesions in the appendix only.

There appears to be two types of advanced uncomplicated pulmonary tuberculous that may not have ulcers at death: first those that die of an extremely rapid tuberculous pneumonia and those that die following a long standing fibroid condition.

Peptic ulcers are not uncommon in pulmonary Tb. Six were present in the stomach and two in the duodeumn. Submucous hemorrhages were present in about 20% of the cases. In one case in which the autopsy was performed immediately after death the cardiac end of the stomach was entirely digested and the pylorous was partly digested away.

Perforation is uncommon considering the number and depth of tuberculous ulcers. Usually the omentum seals the rupture or an adjacent loop of bowel or the body wall helps to close over the breach in many cases, but occasionally a

rapidly forming deep ulcer perforates with all the symptoms of perforation. The mesenteric lymph nodes were nearly always enlarged. There were 5 fecal fistulae, ranging from a small local perforated appendiceal abscess to the whole peritoneal cavity. Meckels diverticulum was present in three cases, two were tuberculous. Stenosis of the colon was present twice.

Incipient lesions are found most frequently, first in the lymphoid tissue above the ileocecal valve; second, in the cecum at the point where the food current strikes the cecum; third, on the margin of the ileocecal valve; and very rarely in isolated points in the ileum or colon. The early lesion does not look like a specific process. The first signs are of the acute inflammatory type with a hemorrhagic and serious exudation with large numbers of polymorphonuclear lencocytes. As the lesion advances, lymphocytes appear and finally a few epitheloid cells. At the time epitheloid infiltration appears the formation of a concrete tubercle is noted in which caseation occurs. Rarely are giant cells found in the acute and progressive lesions, but are occasionally seen in lesions of the stationary or retrogressive type.

Observation On Some Cardiac Lesions Coincident With Pulmonary Tuberculosis. I. D. Bronfin, and Saling Simon, American Review of Tuberculosis, December, 1928.

The coincidence of valvular heart disease and pul-Tb. is not as rare a condition as is generally supposed. Dyspnea out of proportion to the pulmonary involvement, especially when there are no constitutional symptoms, should arouse the suspicion of an existing cardiac affection. The absence of murmurs does not exclude the possibility of grave valvular affections. According to Broadbent a murmur is rarely present in the third stage of mitral stenosis. Pressure pain in the epigastruim gaseous eructations followed by temporary relief from the epigastric distress, paroxysmal attack of dyspnea and cough, fatigue on the slightest exertion, disinclination or inability to concentrate on a physical or mental effort and other well known so called neurotic symptoms may be due as much to early cardiac decompensation as to active pulmonary Tb.

Six cases are presented, three with mitral stenosis, one mitral insufficiency, one a valvular abnormality in the aortic or pulmonic valve, and one a left bundle branch block. All had cardiac symptoms. Of the four mitral cases, 3 had therapeutic pneumothorax. In one case with mitral stenosis and far advanced, chronic, moderately active tuberculosis, involving the greater part of the left lung with apical cavitation, and the right upper lobe, artificial pneumothorax was instituted on the left side as an emergency procedure to control hemorrhage in January, 1927. A fairly satisfactory collapse was finally obtained, but the apical cavity could not be closed on account of adhesions. On May 14, 1927, she had another brisk hemoptysis. The right apex was under suspicion, but the roentgen plates failed to dis-close the source of the bleeding. The latter persisted for a week. Under large doses of digitalis cardiac action improved and the bleeding finally ceased, but she continued to pursue an unfavorable course, manifesting symptoms and signs characteristic of right heart failure. hemoptyses were probably caused primarily by the stenosis and not by the ulcerations in the lung. The pneumothorax failed to influence the course of the pulmonary lesion and unquestionably hastened cardiac decompensation.

The incidence of valvular lesions in pulmonary Tb. recognizable clinically, is about 6% in the experience of the authors. Artificial pneumothorax, when indicated in such cases, should be administered with great caution. Complete bed rest must be rigidly enforced for a longer period of time than in cases uncomplicated by heart disease. The electrocardiogram often aids in determining the cause of obscure cardiac symptoms.

The Evolution of the Modern Treatment of Pulmonary Tuberculosis. Charles L. Minor, American Review of Tuberculosis, December, 1928.

The author briefly reviews the evolution of treatment since the time of Laennec, and more especially during the last 40 years. The first step was taken in the 1850's when Brehmer evolved the hygienic, dietetic and Sanatorium treatment which will always be connected with his name. The faults of his treatment were later corrected by Dettweiler at Falkenstein and because the basis of our modern treatment. In 1882 Koch discovered the bacillus tuberculosis and continuing his researches, before long offered the world a new remedy-Tuberculin. It was met with much enthusiasm and greeted every where, yet today the question of its value and the indications for its use are still subjects for debate and still unsettled. About the same time that Koch was carrying out his experiments, there developed in Italy what has proved to be one of the most brilliant advances ever made in phthisiotherapy. This was Forlanin's artificial pneumothorax, first brought out in 1884 the profession was slow to recognize or adopt it, though Murphy of Chicago in the nineties did excellent original work on it. Near the end of the last century surgeons, led at first by Tuffier in France and later in Germany by many able workers among whom Sauerbruch stands preeminent, began to develop pulmonary surgery. We have in thoracoplasty, apicolysis phrenecotomy and phrenicoexairesis, well planned measures with a moderate mortality, which have added to the list of curable cases a further number of hitherto utterly hopeless cases.

During all of these years drugs, which were at first recognized part of the therapeatics of Tb. have been steadily losing ground save as adjuvants or as symptomatic remedies, when they can be invaluable. With heliotherapy, brilliant results have been obtained in surgical and lymphnode Tb. and reflected sunlight often gives favorable results in tubercular laryngitis, but it is not advocated in pulmonary cases and most men consider that it is likely to activate sleeping trouble and do harm.

Osler's dictum may be quoted in regard to climate, "care without climate is better than climate without care." Although there are types of cases in which climate has a favorable effect.

The most important feature in the treatment is Rest and later there comes a time when exercise must be begun and increased and it takes skill and experience to know when this time is. Thus the crux of the situation is the proper use of those two things, rest and exercise. Psychotherapy is another element which is essential in

the treatment of pulmonary Tb. Fill our patient's heart with hope and we double the fighting force of every cell in his body. Teach him to smile and we wake up a sunlight in his heart which is the best heliotherapy. Rouse his will power to fight with us and our task at once becomes easier.

## DERMATOLOGY AND RADIO-THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Buliding, Oklahoma City

## Recurrent Herpeszoster: A. L. Skoog, J. A. M. A. 91:791, September 15, 1928

Dr. Skoog reports a patient who had herpeszoster and tabes dorsalis. The patient had recurrent attacks of herpeszoster at about six weeks intervals lasting over a period of three years, his attacks always occurring during an attack of gastric crisis. The second sacral segmental area was involved each time. The lesion was either on the right or left side and frequently it was bilateral, the attacks running the usual course. The report embodies the case history with good photographs and a critical review of the literature, with special reference to the frequency of recurrence of herpeszoster, the etiology and the relationship between herpeszoster and syphilis. In the author's conclusions he states that syphilis favors the possibility of the development of herpeszoster and he accepts the theory that some organism produces ganglionitis and secondarily the eruption. He is of the opinion that in a certain number of cases there is some additional etiologic factor such as, trauma or neighborhood disease such as tuberculosis or malignant neoplasms.

# A Case of Pellagra Following Voluntary Reduction of Diet. Paul S. Carley, J. A. M. A., 91: 879, September 22, 1928.

Because of indigestion Dr Carley's patient limited her food so that her diet was made up chiefly of cooked cereals. After one year of such dietary management she developed the early symptoms and finally more marked symptoms which led to a diagnosis of pellagra. The treatment consisted of an ordinary unrestricted diet to which two cakes of dried brewers yeast were added each day. After one month the skin symptoms including both the dermatitis and mouth lesions had completely disappeared and in a few weeks all other evidence of pellagra was gone.

# Experimental Creeping Eruption From a Dog and Cat Hook Worm. Bedford Shelmire, J. A. M. A., 91:938, September 29, 1928.

This work reports a critical review of the literature and the results of experimental work done with larvae of the cat and dog hook worm. Creeping eruption has been found to be caused by four different parasites but the author is of the opinion that the ordinary form of creeping eruption seen in this country is caused by infected larvae of Ankylostoma brasiliense, and that the infection makes its entrance into the skin from moist sand and similarly contaminated earth by the excreta of cats and dogs harboring the hook worm. The author contaminated eighteen volun-

teers with a pure culture of the Ankylostoma brasiliense larvae from one adult female worm. It was noted that the clinical manifestations were indistinguishable from the ordinary spontaneously acquired case. Intercurrent infections in two patients accounted for the development of high fever after the creeping eruption was definitely retarded. There was no evidence either microscopic or clinical of intestinal infection with the parasite. A slight increase in the eosinophil count was the only change noted in the blood picture. This excellent article includes a detailed report of all experimental work both laboratory and clinical and gives some good photographs.

# Ingrowing Hairs. G. Weninger, Ann. de dermat. et syph. 9:687, August, 1928.

Weninger has studied this common papular and papulopustular disorder of the bearded region. He finds the lesion to be the reaction of the body to the effect of a foreign body embedded in the skin. This foreign body is the distal portion of the hair. In this study he has noted a familial and hereditary tendency towards occurrence. He also believes that the underlying cause is an exaggerated obliquity of the hair. In severe cases he suggests manual epilation.

# Hyperkeratosis of the Extremities in Cold Weather. R. Barthelemy, Ann. de dermat. et syph. 9:681, August, 1928.

The author states that this minor ailment is not mentioned in any representative French text book although it deserves to be. It is first noticed with the onset of the cooler months and is manifest by a thickening of the skin of the pulp of the finger and is followed by a superficial desquamation which leaves a pink thin surface. This surface may partly be covered by a loosely adherent scale. In some instances however the surface may remain slightly thickened, less movable than normal, and rough. Small fissures also may be noted. The condition may involve other areas of the hand. The feet may also be slightly changed in this same manner but here the trouble is less marked. Besides this type there is a definite type which shows a fissure and subungual hyperkeratotic variety. With the return of warmer months the condition completely disappears. Most of these patients normally have a mild form of ichythosis or an abnormally dry skin. This predisposing factor is accentuated by the well known vasoconstrictor action of cold. Treatment consists in the employment of physiotherapeutic measures, protection from the cold, oily injunctions, and bella donna internally.

## Paraffinoma of the Arm with Metastases to the Thighs. L. Hufnagel, A. Hufnagel and de Nabias, Bull. Soc. franc. de dermat. et syph. 35: 488, 1928.

After a patient had received a considerable number of injections in the arm of camphorated oil he was observed five years later to have developed a number of indurations of the thighs. Similar nodules appeared four years later on the arm. Both the lesions of the arms and legs were painful. Sections from both extremities showed the characteristic pathologic pictures of paraffinoma. Metastasis of these lesions have been previously reported but it is difficult to account for it. In this case syphilis may have been an etiologic factor.

Use of Epinephrine in Allergic Diseases. R. M. Balyeat, J. Lab. & Clin. Med. 13:1019, August, 1928.

Dr Balyeat gives the results of many cases of asthma, hay fever, and urticaria in which he has had good results in treatment with epinephrine. He gave moderate sized doses of the drug in true cases of asthma complicated with hypertension and in cardiorenal cases and found systolic blood pressure to be but little changed. In at least 40% of cases of hay fever systematic reactions are encountered. Dr. Balyeat states that by making use of epinephrine the dosage can be carried sufficiently high to give relief to those patients suffering from hay fever and asthma. He calls attention to the fact that when epinephrine is once used for this purpose it must always be used for a temporary relief of acute attacks of urticaria due to food poisoning, serum sickness, or bites from insects, epinephrine in from 6 to 12 minim does will usually give desired results. If in cases of sting from insects or idiosyncrasies to food or drugs there are symptoms of severe abdominal pain with swallowing of the tongue or soft palate, the dosage of epinephrine then should be given in from 10 to 15 minims hypodermatically and the throat should be swabbed with a 1 to 1000 solution. For the relief of the asthmatic attack the best results are obtained by giving the epinephrine at the beginning of the symptoms and not after the patient has wheezed for three or four hours.

EYE, EAR, NOSE and THROAT
Edited by Jas. C. Braswell, M. D.
726 Mayo Bldg., Tulsa

Meniere's Disease: Its Diagnosis and a Method of Treatment: Dandy, W. E., Arch. Surg., 1928, xvi, 1127.

In this article Dandy proposes a new treatment for Meniere's disease consisting of intracranial section of the acoustic nerve on the affected side. He reports nine cases so treated. At the time of the report, from three months to three and onehalf years after the operation, all of the patients were free from the characteristic attacks.

The author emphasizes the necessity of selecting only true cases of the disease for operation. All of his patients had had attacks of severe dizziness and unilateral tinnitus coming on very suddenly without warning. In true Meniere's disease the tinnitus usually persists after the attack, and there is generally a unilateral loss of hearing of varying degree. The character of the dizziness may vary; nausea and vomiting may or may not be present. Contrary to the general belief that Meniere's disease primarily involves the semicircular canals, Dandy found that the acuity of response to caloric stimuli was unimpaired in three cases and only slightly reduced in one case.

In so-called pseudo Meniere's disease, when the attacks occur without deafness or lateralized tinnitus, the operation described is of course not feasible.

A differential diagnosis from brain tumor, especially in the region of the acoustic nerve, is made upon the basis of the absence of increased intracranial tension and the absence of involvement of other cranial nerves. In Meniere's disease, moreover, the dizziness occurs in attacks

with free intervals between them, while in cases of tumor, the dizziness is more or less constant.

Particularly because of the fact that both the vestibular and cochlear functions of the eighth nerve are impaired in varying degrees in this disease and no cases are on record in which there was loss of vestibular function without impairment of cochlear function, Dandy believes that the disturbance in Meniere's disease lies within the nerve itself and not primarly in the semicircular canals. It is indeed upon the strength of this belief that he bases the rationale of his treatment, a rationale borne out by the excellent results obtained in all of his nine cases.

The Lynch Type of Radical Frontal Sinus Operation: Anderson, C. M., Minnesota Med., 1928, xi, 461.

In suppurative frontal sinusitis, the Lynch type of operation is satisfactory. The cosmetic effect is excellent. If there are complications such as a draining fistula, destruction of the external table of the frontal bone as a result of previous operative procedures, disease, or a marked tendency toward polyposis, a more radical type of operation is indicated. If the fistula is situated in the upper lid or sequestration of the floor of the frontal sinus is present, the Lynch type of operation gives excellent results. When the sinus has not been entirely obliterated the chief difficulty in all external operations is a tendency of the new nasofrontal duct to close. This can be obviated to a great extent by the use of dilators.

The Etiology of Trachoma: Noguchi, H., J. Exper. Med., 1928, xlviii, Supp. 2.

In an investigation to determine the cause of trachoma the author used material obtained from untreated well-advanced cases of trachoma in students attending the Government School for Indians. The ordinary bacteria isolated and cultured on various media did not induce trachoma when directly inoculated into the lids of monkeys, a chimpanzee, or an ourang-utan, but an associated bacterium, designated by Noguchi as "bacterium granulosis," caused a persistent granular conjunctivitis which closely resembled and was apparently identical with trachomatous granular conjunctivitis in man and was followed by a spontaneous infection of the eye not injected.

The next step in the investigation was to determine the possibility of direct transference of the disease from monkey to monkey. Attempts at such transference were successful in twenty-one cases, doubtful in one case, and unsuccessful in one case.

The bacterium granulosis can be recovered from inoculated animals and has been found in microscopic examinations of monkey and human tissue.

From these determinations the author concluded that the bacterium granulosis is the inciting agent of trachoma in man and of granular conjunctivitis, the analogous condition, in monkeys.

Ultraviolet Light in the Treatment of Ophthalmic Disease . II. Local Phototherapy: Duke-Elder, W. S., Brit. J. Ophth, 1928, xii, 353

The action of ultraviolet light is primarily destructive. Following exposure of living tissue to ultraviolet rays, there is a photochemical denaturation of the cell and later a coagulation of its

proteins, i.e., a destruction of the cell which is partial or complete according to the amount of radiation. Subsequently, the neighboring cells attempt to repair the injured cells. This active response occurs in practically all superficial living tissues.

In the case of the avoscular crystalline lens, however, repair is comparatively lacking, the damage tends to be cumulative, and coagulation of the cells results in cataract. Duke-Elder says that when the radiation is not of sufficient intensity to produce a cataract immediately, changes occur in the colloid system of this tissue which render the proteins more liable and favor their subsequent coagulation by other influences. Small doses tend to produce a complicated cataract.

In the case of the tissue behind the lens, ultraviolet light treatment is useless since wave lengths in this part of the spectrum cannot pass through both the cornea and the lens.

The size and direction of the beam, the intensity of the irradiation, and the time of exposure must be accurately controlled, and the dosage must be kept below that which will produce an erytheme of the skin. The sensitivity to the treatment varies with the individual.

The author discusses at length the biological action of ultraviolet light on the various tissues, normal and pathological, and recommends ultraviolet light treatment especially for old indolent and recurrent corneal ulcers, severe hypopyon keratitis, recurrent phlyctenulosis, tuberculous conjunctivitis, and trachoma.

A New Modification of the Radical Operation on the Mastoid. Preliminary Communication: Ross, E. L., and Joyce, W. M. Arch. Otolaryngol., 1928, vii, 583.

The authors report their technique and results in the use of a pedicled skin graft with an attached larger area of periosteum to line the cavity of a mastoid which has been operated upon radically.

The flap is taken from the skin posterior to, and parallel with, the original incision. After the bone work has been finished a second incision parallel with, but 1-2 in. posterior to, the first incision is made through the skin, the skin is elevated posteriorly for 1-4 in., and the periosteum is then incised. Before the tip is detached, an area at the base which will lie between the edges of the wound is thoroughly denuded down to the vascular papilla of the corium. After the tip has been cut through, it is placed over the eustachian tube opening. The entire posterior wall of the canal is turned up and sutured with a silkworm ligature through the posterior auricular fold. The wound is closed without tension by dissecting the skin up posteriorly for about 3 in. A light iodoform gauze packing is left in for about three days.

This procedure results in a dry epithelized cavity.

The Histology and Pathology of the Articulation of the Auditory Ossicles.: Druss, J. G. Arch. Otolaryngol., 1928, viii,, 56.

The articulation of the malleus and incus and stapes usually consists of four layers in each ossicle: (1) a bony layer; (2) a calcified cartilage layer; (3) a hyaline cartilage layer, and

(4) a terminal layer. Three of the layers are more or less constant but the fourth is variable.

Ankylosis of the ossicles is comparatively frequent and may be considered a phylogenetic variety.

In the author's opinion, the articulation is a symphysis instead of a true joint.

In only one of thirty-seven ears examined was suppuration found within the joint. This was probably due to the resistance capsule surrounding the joint.

The article contains photomicrographs showing preparations.

Air Embolism of the Retinal Vessels: Barkan, H. Arch. Ophth., 1928, Ivii, 402.

In spite of the number of operations on the chest that are being performed today, air embolism is uncommon. Many patients have complained of visual disturbances following chest surgery, but few observations of the ocular fundi under such circumstances have been made. In rabbits, Barkan noted the appearance of several rod-like silvery particles shooting along the retinal arteries and causing the whole arterial tree to shine brilliantly.

Barkan reports the case of a man thirty-five years of age who had several attacks of blindness lasting from twelve hours to six days following the removal of a piece of bone from a bronchus. Several months later the fundus was found negative, but the fields showed relative and positive scotomata.

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 ${f NOTE-Corrections}$  and additions to the above list will be cheerfully accepted.

# THE JOURNAL

OF THE

## OKLAHOMA STATE MEDICAL ASSOCIATION

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MUSKOGEE, OKLAHOMA, MARCH, 1929

NUMBER 3

## OKLAHOMA SCHOOL OF MEDICINE

Address Delivered by LEROY LONG, M.D.

Dean of the University of Oklahoma School of Medicine.

At the Dedication of the School of Medicine Building, Oklahoma City,
November 2, 1928.

Mr. President, His Excellency the Governor, Distinguished Guests, Members of the Board of Regents, Fellow Students, Ladies and Gentlemen:

Speaking for the School of Medicine, I

grade, or first class standing. Fortunately, the humiliation under which we smarted spurred us on to greater effort.

A little over ten years ago we were doing the best we could in temporary quarters at Norman and in wholly inadequate rented property here at Oklahoma City. In order to get a start, we went to the Legislature and asked for an appropriation to build a hospital for the school. The bill providing for an appropriation for the construction of a hospital and the creation of a campus for the medical department of the State University, on a tract of State-owned land in Oklahoma City, was introduced in the Senate where



SCHOOL OF MEDICINE, OKLAHOMA UNIVERSITY, OKLAHOMA CITY

wish first of all to extend to you a most cordial welcome. I wish to extend to you welcome and a hearty invitation to visit us again, and often.

Some years ago, when we were a "B" grade school, we felt the humiliation of it—humiliation, not because we believed the classification unjust, but, rather, because we realized that it was a just and fair classification, for at that time we knew that we were not able to qualify for "A"

it was referred to a committee. From our point of view, the need was so obvious that we innocently imagined that there would not be much opposition. Our eyes were opened when, only a few days later, the committee brought in a report recommending "that the bill do not pass."

Through the invaluable assistance of friends in the Senate, together with the powerful influence of Governor Williams, who was then the Chief Executive of the State, the bill was sent back to the committee for reconsideration, and it was arranged for us to have a hearing two days later at the noon hour in the Senate Chamber. Nearly all the members of our faculty were there, and many students. It was a memorable occasion. With impassioned pleas and unanswerable logic, one after another presented the claims of the School of Medicine, and on that day we solemnly promised that if we could get help we would remove the odius stigma of "B" grade.

And then the medical profession came to our assistance. The members of the Legislature were anxious to secure reliable information, and they received it from the physicians of the State. The struggle continued for longer than two months, when, in March, 1917, just before the adjournment of the Legislature, the bill passed by an overwhelming majority.

Parenthetically, let me say this: have had official dealings with six or seven Legislatures, and, almost without exception, we have found the members in both House and Senate, regardless of party, willing to hear and consider straightforward statements. We have likewise had official dealings with the administrative officers of the State over this rather long period, and, practically without exception, we have been heard with patience and courtesy, and have received at their hands invaluable support, assistance and co-operation. Our experience over those years leads me to believe firmly that sharp practices and tricks should be shunned by an educational institution seeking aid at the hands of the Legislature and officers of State.

The Great War interfered with the building of the hospital, but it was finallly completed in 1919 and in August of that year we occupied it. In the meantime, through legislative help, the school had been strengethened in all departments. In March, 1920, following an inspection by the Council on Medical Education, we were advanced to "A" grade. The first of our dream had "come true."

Then we had another dream—a dream with a vision—the vision of a building here on the campus of the School of Medicine that would house the entire school. And now that dream is a reality.

But, as invaluable as has been legislative help, that, alone, could not have car-

ried us forward over those weary and sometimes disheartening years. During the developmental period of an institution -particularly an institution that requires a large personnel, without means to pay them adequately—there is only one way by which success can be achieved, and that is through the complete loyalty and cooperation of the faculty. It is well known that the University of Oklahoma has grown so rapidly that its needs have uniformly been out of proportion to the salary budget, with the result that members of the faculties of all departments have received less for their services than that paid by other like institutions of smaller size, and probably of less importance. This has been particularly true of the School of Medicine, where many members of the clinical division of the faculty have not only served for practically no pay, but for a number of years furnished much of the necessary technical equipment.

We now have a faculty of almost one hundred, and, regardless of minor differences, and, sometimes temporary heartaches, they have stood, as they stand now, in an unbroken phalanx in support of the administrative officers of the school. That, after all, is the foundation upon which the medical department of the University of Oklahoma has been built.

But even with a loyal faculty and money to build houses and buy equipment we could not succeed without the great central support of the University with its wise President and Board of Regents. All of our dignity and usefulness and influence are centered there, and now that we are entirely off the principal campus I feel the necessity of keeping in close and intimate touch with the University with a keenness that I never realized before—a keenness so acute, sometimes, that I envy the sister departments that are grouped on the campus at Norman.

Any impression that the School of Medicine is drifting away from the University because it happens to be located in Oklahoma City is foolish, unreasonable and utterly groundless. Without our connection with the University we could not exist as a respectable medical school. To be known as the medical department of the State University of Oklahoma gives us prestige and power and standing; aye, and it gives us pride—so much pride, Mr. President, that the paramount ambition of this school is to do its work in such a way that it may be worthy of the confi-

I have already referred to the assistance that the school has received from the medical profession, but I cannot permit this opportunity to pass without emphasizing our gratitude to the physicians of the State. I have every reason to believe that the school has their active support, and I regard that support as one of our most important assets. No class of citizens are better able to intelligently judge the work of the school, because they are able to accurately appraise the product of our efforts in both the training of students and the treatment of patients in our hospitals and clinics.

Not only are we grateful, but we wish to render a concrete service to the medical profession in both their own interests dence of the great University of which it is a part.

prescribed period of training in a gymnasium could enter, and before the contest began each one had to swear.that he would race fairly. And then, after the swift struggle down the long stadium, the victor was conducted to the feet of the statue of Zeus where he received the greatest gift that Greece could bestow. Not money or lands or houses, but a simple wreath of branches cut from the sacred wild olive tree. The contestant at Olympia did not run for sordid gold or crumbling wealth, but for an ideal. And then, after the ideal had been attained, he had the right to build a monument in the sacred grove.

We, too, had an ideal. It was attained in 1920 when the olive wreath of "A" grade was laid upon the alter of our school. Then we claimed the right of the



OKLAHOMA'S HOSPITAL FOR CRIPPLED CHILDREN, OKLAHOMA CITY

and the interests of the people they serve. To that end, we take the greatest pleasure in co-operating with the extension department of the University in securing eminent medical men to conduct courses in the several departments of Medicine both on the circuits in different parts of the State and the special courses here at the school. In every way, our doors are open to the reputable members of the medical profession and we most earnestly extend to them a standing invitation to use, at their pleasure, any facilities that we possess.

In an address at a meeting of students just after the School of Medicine was advanced to "A" grade in 1920, I referred to the custom in anicent Greece of bringing together Grecian youths every four years to take part in the foot races at Olympia. Only free born Greeks of unblemished reputation who had spent a

victor to build a monument in the sacred grove. It has been done, and we are here today to dedicate it. In this solemn hour I pledge the best efforts of this faculty to maintain our ideal, and to see to it that the work done in this house shall be useful to the people of the State.

## GOITRE

## W. W. RUCKS, M.D. OKLAHOMA CITY

In order to diagnose and treat diseases of the thyroid properly, a simple classification is essential. Goitre should be classified as: *colloid*, *adenomatous* (simple or toxic) and *exophthalmic*.

In this simple classification we have two non-toxic and two toxic varieties. The nontoxic are colloid goitres and simple adenoma. The toxic varieties are adenoma with hyperthyroidism and exophthalmic goitre.

The word goitre merely indicates an enlargement of the thyroid gland but gives no hint as to the type. Definite diagnosis as to type is necessary in order that a sensible prognosis may be given and intelligent treatment instituted.

Colloid goitre may occur in any locality, but is largely met with in the goitre regions or belts and most frequently has its onset at or shortly after puberty. It is not characterized by signs or symptoms of hyperthyroidism. It has been called "adolescent goitre" and because of regional distribution in certain inland, mountainous, supposedly iodine-poor localities, it has been called "endemic goitre." This may be somewhat misleading since adenomatous goitre frequently have their beginning at this age of life and are also classed endemic.

The adolescent or colloid goitre is a smooth, symmetrical enlargement of the thyroid and should not be treated as a toxic goitre. It is characterized by geographical preponderances in certain endemic goitre areas; frequent onset at or shortly after puberty, and absences of signs or symptoms of hyperthyroidism.

While the majority of cases are found in regions where goitre is endemic, sporadic colloid goitre may occur anywhere and undoubtedly is not infrequently met with in Oklahoma. We may conceive of colloid goitre as being the expression of a stimulus to the thyroid acting only for a limited time. This stimulus is probably merely a chemical demand on the part of the tissues for an increased supply of thyroid secretion. As the result of the stimulation. there is a slight degree of hyperplasia, dilatation of the acini and therefore some enlargement of the gland. Upon cessation of the stimulus, hyperplasia gives away to retrogression and the dilated acini become filled with colloid and can never revert completely to normal size so that the gland remains permanently enlarged. It is normal physiologically but abnormal anatomically.

This is the type of goitre upon which Marine and Kimball have shown iodine to have so remarkable effect. The gland shows rapid reduction in size provided other lesions such as adenomata are not present. The iodine appears to give the gland the needed rest and thus enables it to return to as near normal as may be consistent

with the permanent damage that has already taken place. When hyperplasia has passed a certain stage, return to normal is impossible and the best that can be hoped for is a colloid goitre. Marine and Kimball have demonstrated in a large number of school children that the use of iodine in this type of goitre is both curative and prophylactic.

### NON TOXIC ADENOMA

Another type of non toxic goitre is adenoma without hyperthyroidism. This consists of a hard nodular, asymmetrical enlargement of the thyroid gland. Pathologically typified by one or more encapsulated masses called adenoma; degenerative alterations in some of these masses by hemorrhage, cystic changes or calcification and intensely staining colloid. It is characterized clinically by: 1. Geographical preponderance in goitre regions. 2. Frequent onset shortly after puberty and persistence for many years thereafter even into late adult life. 3. Absence of symtoms of hyperthyroidism. This type of goitre is frequently seen in Oklahoma. It is the hard, nodular or multinodular goitre and may exist for years without producing constitutional symptoms. Like colloid goitre it may have its development at or around puberty and for years its development may be very gradual. Later however, it bulges into view and then attracts even greater attention than the colloid variety because of its cosmetic ugliness and asymmetry. Generally the right lobe is more conspicuously involved than the left though both sides usually show in the adenomatous pathology; whereas a moderate size colloid enlargement is characterized by a smooth rounded symmetrical fullness to the neck, in some instances even adding beauty. An irregular adenoma will mar and disfigure the neck, which is one indication for operation. Hemorrhage into an adenoma may suddenly occur as I have seen it do with immediate and alarming symptoms. Or, the patient at 30 to 45 years, gradually become cognizant of annoying constitutional symptoms which she may not associate with goitre but which her doctor will recognize as evidence of toxic alterations in the adenomatous gland.

Most intra-thoracic goitres are of the adenomatous variety, also malignancy of the thyroid has its origin in this type and occurs in about two or three percent. When an adenoma perforates its capsule,

malignancy is an assured fact. Metastases occurs most readily from the thyroid and malignancy therefore is universally fatal. Adenoma without hyperthyroidism is distinguished from toxic adenoma and exophthalmic goitre by absence of constitutional symptoms—normal basal metabolism rate. The constitutional signs and symptoms that depend upon excessive function of the thyroid such as tachycardia, tremor, palpitation, dyspnoea, nervousness, loss of weight, diminished endurance are present in toxic adenoma. Added to these in exophthalmic goitres are the peculiar "eye signs," the great emotional disturbances which may often become delusional. Simple adenoma is free from these symptoms.

Non-toxic adenoma become surgical because of its unsightliness; because of sudden hemorrhages into the adenoma, choking sensations and as a prophylactic measure against toxic goitre. Also it is a potential source of hypertension, nephritis, myocarditis and malignancy, and as such should receive early surgical attention.

The use of iodine in adenoma of the thyroid has been strongly condemned by Plummer and many other workers in goitre. Its use converts a non-toxic into a toxic adenoma and rapidly brings about the constitutional symptoms of hyperthyroidism in an otherwise non-toxic goitre.

An indiscriminate use of iodine cannot be too strongly condemned. It is a valuable remedy in the prophylactic and reduction treatment of colloid goitre. It is a detrimental remedy in the treatment of adenomatous goitre. It is a remarkably valuable remedy in the pre-operative treatment of exophthalmic goitre, also of great value in the post-operative management of exophthalmic goitre.

Toxic Adenoma is typified pathologically by:

- 1. One or more encapsulated masses called adenomas.
- 2. By absence of parenchymatous hyperplasia in most cases.
  - 3. By weak staining colloid.

### CLINICALLY CHARACTERIZED

- 1. By the history of the presence of goitre for many years without symptoms of hyperthyroidism.
  - 2. Then by more or less striking symp-

toms of hyperthyroidism such as tachycardia, tremor, nervousness, loss of weight etc.

- 3. An elevated basal metabolism rate plus 15 to 80 plus.
  - 4. Absence of exophthalmic signs.
- 5. Absence of thrill and bruit over thyroid.
- 6. Intensification of symptoms if iodine has been administered for a considerable length of time.
- 7. Complete relief from symptoms of hyperthyroidism and restoration of normal basal metabolism rate when fully operated.

This type of goitre should not be confused with hyperplastic or exophthalmic goitre, since the pre-operative and postoperative care is quite different. The history will be of great value in determining the type; goitre will have existed for many years without having caused any symptoms and frequently the patient does not associate the nervousness and diminished endurance with the enlargement in his neck. What factors are responsible for this toxic complication, be it sudden or gradual, remains a mystery, whatever the force may be, it seems to act by increasing the concentration of thyroid hormone in the tissues of the body. In fact, the clinical picture of toxic adenoma can be exactly reproduced by the administration of excessive doses of thyroid extract or thyroxin, concomitant with the symptoms may be noticed enlargement of the goitre which has been stationary for years. Nervousness is a real symptom and may be noticed by relatives as well as experienced by the patient. Tremor is a constant symptom and may not be confined to the fingers but felt through the whole body. Diminished endurance is noticeable, regarding which the patient is much concerned. Cardiac symptoms are tachycardia, shortness of breath, palpitation, and a feeling of warmth is not uncommon. Appetite is increased but the patient is surprised to find that he is losing weight despite his intake of food. The basal metabolism rate is above normal. The long duration of these symptoms brings serious heart changes and arterial changes with elevation of blood pressure, converting a fairly safe operative risk into a very serious one. Operative removal of the adenomatous goitre is the only treatment of value, though a period of rest, sedation

and digitalization may of necessity precede it.

Exophthalmic or Hyperplastic goitre is a constitutional intoxication due largely to excessive and perverted thyroid function. It is pathologically typified by:

- 1. Diffused parenchymatous hypertrophy and hyperplasia of the thyroid.
- 2. Absence of adenomatous masses in most cases.
  - 3. General lymphatic hyperplasia.
  - 4. A very low iodine content.
- 5. Degenerative changes in the cervical sympathetic nerves and ganglia.

### CLINICALLY CHARACTERIZED

- 1. Smooth symmetrical enlargement of the thyroid with palpable thrill and bruit in most cases.
- 2. Constitutional symptoms such as, nervousness, loss of weight, loss of strength, tremor, perspiration and intolerance of heat, tachycardia and enlarged toxic heart, increased appetite with loss of weight, increased basal metabolism rate, worry, and irratibility.
- 3. Exophthalmus and other eye symptoms in about 60%.
- 4. A dangerous tendency to thyroid crisis with nausea, vomiting, diarrhea, hyperpyrexia and sometimes jaundice.

In this type of goitre, we have as stated by Plummer, not only the symptoms due to hypersecretion, but a toxic element which gives rise to that part of the syndrome which may be grouped under the eye findings and the intense and peculiar nervousness and psychic changes even maniacal.

According to Plummer, this abnormal product is thyroxin, uniodized. When iodine is administered, the molecule of thyroxin is iodized and robbed of its toxic effect and there remains only the excess of thyroxin. When this condition has been reached by the use of iodine, the time for operation has arrived. Indine here is most valuable—as by its judicious use a poor operative risk may be converted into a comparatively safe one. Pre-operative ligations have ceased to be a necessity. Thyroid crisis is avoided and post operative shock is greatly reduced if not altogether relieved. Iodine is not a cure for exophthalmic goitre and should be used only as a pre-operative preparation and in postoperative care. Proper and well delivered surgery is the therapeutic climax.

I would like again to say iodine is indicated and used with benefit in colloid goitre. That it is contra-indicated in adenomatous goitre and its use will convert a non-toxic adenoma into a toxic one, and in an already toxic adenomatous goitre, will aggravate the symptoms when given over a prolonged time. It is a very valuable remedy in exophthalmic goitre, not as a cure, but as a preparatory treatment for operation and should be used for no other purpose, except for a time, post-operatively.

Concluding, I wish to emphasize the necessity of differentiating the two types producing the characteristic symptoms of hyperthyroid function. If one does this clearly, he is on a safe basis for goitre work in Oklahoma.

The following differential points may be enumerated:

### HYPERPLASIA

- 1. Exopthalmic-60%.
- 2. Thrill & Bruit over thyroid.
- 3. Symmetrical goitre of uniform consistency.
- 4. Parallel development of goitre and toxicity.
- 5. Rapid development of toxicity to an advanced degree with periods of remission.
- periods of remission.
  6. Etiology psychic, trauma, infection.
- 7. Typical blood pressure 140/60.
- 8. High percentage of lymphocytes.
- 9. Rarely sub-sternal goitre.
- 10. Rarely pressure

#### ADENOMA

- 1. No exophthalmus.
- 2. No Thrill or Bruit.
- 3. Asymmetrical, nodular goitre.
- 4. Goitre of a years' duration before toxicity develops.
- 5. Slow development of toxicity without remissions.
- 6. Endemic.
- 7. Typical blood pressure 160/100.
- 8. Normal blood picture.
- 9. Most substernal and intra-thoracic goitre are adenomatous.
- 10. Pressure a common complaint.

A further conclusion is that the use of iodine in goitre has not been entirely clear to every one. This conclusion is held because many patients are seen who have been taking iodine for months as a cure. Such a use of iodine is apt to produce iodine hyperthyroidism, especially is it prone to do so in adenomatous goitre—either toxic or non-toxic.

The public is now demanding iodine regardless of the type of goitre. It is clearly the duty of the profession to regulate its administration after a definite diagnosis. In colloid goitre in young subjects, it is curative and preventive. In non-toxic adenoma it should not be given; in toxic adenoma it may be administered for 8 or ten days as a preoperative preparation, espec-

ially as there is often a mixed type. Areas of hyperplasia may exist and iodine will distinctly lessen the toxicity.

In exophthalmic goitre, it has its most beautiful effect but should be given only as preoperative preparation and post-operatively until the patient has been fully relieved of his toxemia.

Proper, well timed, skillfully delivered surgery is the therapeutic climax.

### THE USE OF IODINE IN GOITRE

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That the use of iodine in goitre has resulted beneficially in some cases has long been known. Rogers, of the University of Salerno, in the twelfth century discovered the value of the ashes of sponges and seaweeds in this connection. In 1820 Coindet recognized that the beneficial agent in most preparations used in the treatment was iodine. In 1850 Chotin in a series of articles presented evidence that the use of iodine would prevent cretinism and endemic goitre. In 1904 Kocher in an article emphasized the necessity of sufficient iodine for the proper functioning of the thyroid gland, and presented evidence that some goitres could be made to disappear by its administration. Even in this early time he recognized that it was indicated in the goitre of childhood and adolescence. but warned against its indiscriminate use. In 1910 and 1911 he again discussed the subject, and because of the many ill effects noted in the adenomatous type of goitre, he again sounded a warning, and as a result of its use was discredited in all types, although he noted no ill effects when used in exophthalmic goitres.

Hare, in his system of medical therapeutics, states that in 1881 McGuire reported a case of exophthalmic goitre greatly benefitted by the cataphoric use of iodine. Meisser, in 1920, reported seven cases of exophthalmic goitre benefitted by the administration of iodine, and Zandek in 1921, reported twelve more cases with metabolic readings showing a lowered oxygen consumption as a result of iodine medication. Boothby, in an article appearing in Mayo's Clinic of 1924, goes more exhaustively into the historical aspect of the subject; and much of the brief survey I have given appears in his publication.

Our conception today of the value of

iodine is largely dependent on the work of Plummer and his co-workers at the Mayo Clinic.

Plummer's classification of goitre is essential to the proper consideration of the subject, as a basis on which to interpret the results of iodine treatment. Nine distinct varieties are mentioned: (1) Diffuse colloid goitre; (2) Adenomatous goitre without hyper-thyroidism; (3) Adenomatous goitre with hyper-thyroidism; (4) Exophthalmic goitre; (5) Myxedema; (6) Cretinism; (7) Childhood Myxedema; (8) Thyroiditis; (9) Malignant disease of the thyroid gland. Only the first four of these diseases are important from a standpoint of iodine treatment.

Marines' investigation and experimental work on animals has been most valuable in developing our present ideas on the etiology and pathology of endemic goitre. His conclusions that deficiency of iodine during the developmental stage brings compensatory changes in the thyroid gland that forms a basis for the development of goitre is most convincing. He states: (1) That all thyroid enlargements begin as active work hyperthrophy and hyper-plasia; (2) Involuntary or restitutional changes occur in most cases spontaneously, or, are caused by the administration of iodine, colloid goitre resulting; (3) Exhaustion atrophy occurs in a few cases, the follicles disappearing, the gland becomes sclerotic, Myxedema, or, cretinism developing; (4) That nodular or adenomatous goitre begins during the first stages of compensatory hypertrophy because of different rates of growth, and that these nodules tend to repeat the same morphological cycle as non-adenomatous tissue; (5) That thyroid hyperplasia (goitre) is a compensatory process dependent upon a relative or absolute deficiency of iodine. Colloid goitre is the type of goitre seen developing in this country in adolescence. Adenomas synchronously appear. As age advances there is more likelihood of them being present, and the probability of doing damage by the use of iodine becomes in-

As a prophylactic against goitre, iodine can be used in children with great benefit, and usually it can be used safely, especially in this country. In certain sections of Europe where endemic goitre has existed so long there seems to be a greater frequency of adenomas occurring early in life and harmful results may occur. These adenomas cannot always be detected if small. There is no evidence that iodine

does harm if given to an individual with a normal thyroid. It is safe to give it to an individual with a colloid goitre up to the age of twenty, except in those with markedly evident adenomas. Beyond the age of twenty many cases may be rendered toxic because of the almost certainty of the presence of adenomas which have developed in the colloid gland. The danger increases with age.

A method of iodine administration which affects the entire family or population as in the use of iodized table salt, or iodized water is inadvisable. Its use should be limited to its definite prophylactic administration to school children. The size of the dose is not the thing of importance. The presence, or, absence of certain types of goitre in the individual is of importance.

Kocher first called attention to the harmful effects of iodine administration to individuals with adenomatous goitres.

There is not a goitre clinic that does not see several of these cases each year. Hyper-thyroidism developing as a direct result of iodine administration in people who have carried simple adenomas for years, activity which, when once aroused does not subside when iodine is discontinued. Is the over supply of iodine always the cause of simple adenomas becoming adenomas with hyper-thyroidism? It probably Mayo says: "The iodine in the food supply and drinking water varies markedly and there seems to be pretty conclusive evidence that they are responsible for the goitre becoming toxic, that, have existed for years without activity."

After hyperthyroidism has been initiated whether or not as the known result of iodine, the withholding of the iodine does not usually decrease the functional activity of the adenomatous tissue. On the other hand the giving of iodine to a patient already presenting hyperthyroidism even though intensely so, seems to do no harm for a week or ten days, although continuous administration might do so. In a small percentage of cases it is impossible to differentiate adenomas with hyperthyroidism from exophthalmic goitre.

As a practical therapeutic measure when in doubt preparatory to operation it is advisable to give iodine even though the case is one of adenoma with hyperthyroidism, while, if the diagnosis is exophthalmic goitre the operative risk will be greatly reduced.

The first extensive study of the effects of iodine in exophthalmic goitre was reported by Plummer in June, 1923, before the Association of American Physicians. He reported four hundred cases with metabolic readings, in which iodine had been given to patients with exophthalmic goitre and showed the great value of iodine in reducing the metabolic rate; in bringing such patients almost immediately out of the dangerous cerebral or gastro-intestinal crisis; and in lessening both the medical and surgical mortality. No patient with exophthalmic goitre was made worse by its administration. The drop in the metabolic rate though cannot be maintained indefinitely. Within a few hours a patient brought in moribund with the cerebral and gastro-intestinal crisis is definitely improved. Plummer says, the effect is as startling and gratifying and fully as certain as that of insulin in diabetic coma." Star and Means of Massachusetts General Hospital have confirmed his report in a large number of cases. Mason, before the Association of American Physicians in 1924 presented similar results at the Royal Victoria Hospital in Montreal.

In the past four years practically every goitre clinic has adopted the use of iodine, not only in exophthalmic goitre but in all other forms preparatory to operation.

It is hardly necessary in this paper to go into differential diagnosis between adenoma with hyperthyroidism, and exophthalmic goitre, although it might be well to emphasize the fact that the two conditions may be co-existent. "Plummer's explanation of the difference in the clinical syndrome of adenomatous goitre with hyperthyroidism and exophthalmic goitre rests on the conception that in the former constitutional symptoms are due to an excess of normal thyroid secretion in the tissue and cells whereas, in the latter as the result of an intense and, as yet unknown stimulation of the thyroid gland, the quantity of thyroid secretion in the cells of the body not only is increased, but that a certain amount of it is imperfect." His supposition is, that the thyroxin molecules are not completely iodized.

Lugol's solution is the preparation most used, and the only one that I have had experience with, except sodium iodide, in the goitre of adolescence.

In all cases of exophthalmic goitre we have operated in the last four years we have started the cases on ten drops of Lugol's solution, three times a day for five

days, then fifteen drops for five days. The effect is truly startling, the pulse rate comes down, the tremor becomes less marked, the nervous tension of the patient is lost. Appetite, though usually good is better, weight increases and the metabolic rate drops rapidly. By the eighth or tenth day the maximum effect seems to be reached, and we have a patient converted into a safe risk for operation. We have had very few ligations or multistage operations during that time, and in no patient has there been a marked post-operative crisis. Exophthalmic goitre cases have become much safer operative risks.

Before using it in all cases, the mixed types were the ones that gave us the most concern from an operative standpoint.

That mixed cases do occur is certain; that some cases of goitre, adenomatous in type, do develop true hyperplasia of the surrounding gland has been observed by microscopical examination. Because of this and because experience has demonstrated that adenoma with hyperthyroidism definitely improves under iodine medication, we have in the past two years used it prior to all goitre operations.

The greatest trouble we are having now with our operative cases, is with cases that have previously had iodine used in treatment. These have had their temporary improvement and do not again respond, although experience seems to show that in them with large doses of iodine we secure in a measure protection from the post-operative reaction. It is in these cases that multistage operations may be advisable.

There is another important field for iodine medication to which I wish to call your attention. The pregnant mother with the frequent enlargement of the thyroid gland should be remembered. This is another type of goitre due to an iodine deficiency resulting from the extra demand due to the development of the offspring. Iodine administration in these cases may prevent the terrible tragedy of cretinism, or other developmental anomalies as well as act as a prophylactic against goitre in later life.

The public is hardly awake to the wide spread prevalence of goitre nor to its menace, not only in those immediately around us but to the future generation.

Iodine used properly has not only been a great help in dealing with some of these

problems but may be of great value in checking the increase of the disease.

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THE SPLEEN, ITS RELATION TO THE RETICULO - ENDOTHELIAL SYSTEM, SURGICAL INDICATIONS AND TECHNIQUE

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Aside from an occasional splenectomy for a few illy understood types of splenomegaly, and as an emergency operation for splenic hemorrhage, it is only within the last decade that the organ has become anything like a surgical problem. It is that even vet. That it could be removed without noticeable deleterious results had been observed by the surgeons of an older surgical era. Even the ancients knew this and believed that the splenectomized runner had more endurance and better wind than the unsplenectomized. However, this may be in the normal individual. there can be no doubt of its truth in the various types of splenomegaly and since malaria was very prevalent in certain sections of Europe until relatively recent times, it may be that this belief had a certain foundation in fact, malaria being a well recognized cause of splenic enlargement.

In an experimental way, Macht and Finesilver have shown very lately that the speed of rats is increased by splenectomy.

The spleen belongs to, and is the largest organ of the reticulo-endothelial system to which belong the tonsils and at the tail end of which is found the appendix.

Physiologically this entire system reaches its highest point of development during adolescence and declines during senescence. This senescence of the appendix misled the great Senn to coin the term "Appendicitis obliterans" which of course is not appendicitis at all but merely the physiological involution which this organ shares along with the rest of the lymphoid system. Still such an appendix can become diseased precisely as disease may be harbored in involuted tonsils.

Our knowledge of the physiology of the reticulo-endothelial system is very limited, but by and large we know it is to a degree hematopoietic. So it is that the surgery of the spleen in this later era is based upon and studied through blood dysfunctions and dyscrasias.

The results of experimental splenectomies by Pearce, Krumbhaar and Frazier, are summed up by Giffen as follows: "(1). The occurrence of anemia of the secondary type; (2) The production of leucocytosis; (3) An increase of the resistance of the erythrocytes to hypotonic sodium chloride solution and other hemolytic agents; (4) A lessened tendency toward hemoglobinuria and jaundice afthe administration of hemolytic agents: (5) A decrease in volume of the portal blood; (6) The conversion of the bone marrow into red marrow and an actual increase in the volume of the marrow which can hardly be explained as merely compensatory to the anemia following splenectomy, and (7) Hypertrophy of the lymphatic tissues which seems to be due principally to hyperplasia of the endothelial cells.'

So much for the experimental work on animals. In man there is a very noticeable difference. In the removal of either the healthy or diseased spleen, the anemia does not follow, but there is a consistent leucocytosis. The toughness of the erythrocyte is increased.

The study of the physiology of the ductless glands to which class the spleen belongs is obscured by the line of approach which is indirect. The secretions of the duct glands can be studied direct, but the ductless must be arrived at thru blood chemistry and direct chemistry of the gland substance and extracts which must then produce certain physiological effects when injected into the tissues, blood stream or by ingestion. The margin of error is therefore much greater, and reliable data arrived at with much greater difficulty. While not a vital organ, the importance of the spleen is not to be underestimated because of its size and enormous blood supply. Nature is not wasteful in her methods and soon places nonused organs among the disappearing vestigals.

In a general way it is clear that at one end of the reticulo-endothelial system the new blood tissues are formed, while at the other end, worn-out elements are disposed of. Let us say as a working formula that these elements originate in the red marrow and meet their end in the spleen. While we do not yet know enough positively to say that this is exactly true, it will answer as a roughed in sketch.

Then it will follow that there will be two types of anemia broadly speaking:

1. Anemia due to exhaustion or inadequacy of the blood forming organs—primary or essential anemia.

2. Anemia due to a too rapid destruction of the formed blood—secondary anemia.

Viewing the situation in this way it will be easily understood that with rapid destruction occurring on the one hand, there will be a compensatory out-put on the other until the stage of exhaustion is reached when the blood picture of the two types will blend and the diagnostic difficulties become very great.

At the present time this formula is the broad working scheme of our clinic in differentiating surgical from non-surgical spleens.

### SURGICAL INDICATIONS

- 1. Injury of spleen with uncontrollable hemorrhage.
  - 2. Hemolytic jaundice.
  - 3. Purpura hemorrhagica.
  - 4. Splenic anemia.
  - 5. The spleno-megalies.
  - 6. Splenic tumors.

The first of these indications will be dismissed without discussion since on this indication all will agree.

Hemolytic Jaundice: The spleen in this type of jaundice is moderately enlarged and the anemia seems to be of almost the pure end-type, that is the destruction of the erythrocytes occurs faster than they can be formed. For this the spleen appears to be directly responsible. It is a jaundice altogether unlike the obstructive types—there is no over-flow of bile in the urine, and there is bile in the stools. However, as shown by statistics (Moynihan, Mayo) gall-stones will be found in about 50% of the cases. This is rather large to be considered coincidental. The relationship if any is so far unknown.

But the most significant finding in the blood is the fragility of the erythrocyte. This usually but not always disappears after splenectomy. Results of the operation is very striking and at this time seems to be fairly well established as the procedure of choice in a hitherto hopeless condition.

The presence of microcytes and reticulated reds in the blood indicates the strenuous efforts of the marrow to compensate for the abnormal destruction of the red cells. The blood forming organs are so hard pressed that immature erythrocytes, (like untrained reserves in a hard pressed army) are being rushed into action.

The two types of this disease, the first of which has been described above are:

- 1. The acquired.
- 2. The congenital.

The disease in either type is familial but in the former not necessarily congenital.

We are stressing hemolytic jaundice especially for the reason that it may be with our present lights, considered primarily as splenic disease and is amenable to splenectomy, therefore in the confusion surrounding so many of these blood dyscrasias, its diagnosis is of vital importance.

In closing the discussion of hemolytic jaundice we believe it to be of value to sum up the clinical and laboratory diagnostic points.

- 1. Clinical—Acquired form only considered.
  - a. Jaundice, from slight to moderate, due to the pigment of the destroyed red cells, lemon yellow, never deep, with bile free urine.
  - b. Recurrence of acute exacerbations with intervals of apparent well being; during these exacerbations mild to marked abdominal discomfort and sickness.
  - c. Chronicity of the disease—patient apparently not very sick.
  - d. Anemic appearance.
  - e. Enlarged and palpable spleen.
  - f. Presence of gall stones, secondary, 20 to 30%.

### 2. Laboratory.

- a. Low hemoglobin with red cells from 3,000,000 to 1,000,000 (rarely).
- b. Increase of reticulated reds and microcytes. The former may reach to the extent of 20%.
- c. Urobilin in urine and stools in greatly increased amounts.
- d. Fragility of reds indicated by decreased resistance to hypo-tonic salt solution. This is the *path-ognomonic finding*.

Purpura Hemorrhagica: This is a distinct entity and must not be confused with the petechial and other hemorrhages incident to and occurring in other forms of disease. Spontaneous hemorrhages will occur in the advanced stages of obstructive jaundice, pernicious anemia, lymphatic leukemia, sepsis etc.

The characteristic feature of this disease is the striking decrease in the blood platelets. A reduction to 50,000 will be manifest clinically with petechia, 25,000 with spontaneous hemorrhages. In the petechia and hemorrhages of other exhausting or blood diseases, there is not necessarily a platelet decrease. With the secondary purpuras, this paper will not deal. With this elimination we may classify the disease as:

- 1. Acute.
- 2. Chronic.

Acute: A disease occurring in either sex, at any age, but favoring youth. Course can be measured in weeks and untreated is rapidly fatal. Since splenectomy is curative and the only effective treatment, diagnosis is most important.

Petechia will begin appearing sparsely on the skin of an otherwise healthy patient in the absence of prodromata or associated symptoms. There are no clinical symptoms other than the early petechia with the increasing weakness and anemia incident to the later, more massive spontaneous hemorrhages. The slight fever is probably due to the absorption of extravastated blood. The essential diagnosis points are:

- 1. Appearance of skin and mucous membrane petechia in successive crops, followed in the later stages by massive mucous membrane hemorrhages in an otherwise healthy patient, with the associated late anemia and weakness.
- 2. The characteristic behaviour of the blood clot. While the clotting time is not measurably delayed, it is incomplete and reclotting occurs.

Due to the platelet shortage, there is a weak thrombin reaction with slowed fibrinogen formation. There is no clot retraction because of platelet deficiency. Because of what seems to be a splenic attack on the blood platelets only, the other elements of the blood apparently escaping, there is no compensatory stimulation of the blood forming organs, hence young types of cells are not often found at least until successive hemorrhages have called

for this compensation—that is late in the course of the disease.

Chronic: It is thought by some that this is an entirely distinct disease from the acute, but the only essential difference is in the chronicity. Its course is a matter of years rather than weeks. Diagnostic features are essentially the same.

Splenic Anemia: In splenic anemia we are treading close to, if not actually, on that form of associated liver condition known as "cirrhosis" with splenomegaly. The term is used interchangeably with Banti's Disease. If there is a differentiating line, it is not yet clear. The clinical picture is that of deepening anemia with splenomegaly associated with first enlargement of the liver with later diminution in the size of the liver.

Gastric hemorrhages which occur rather late and which are often the symptoms bringing the patient to the consultation room are as a rule the result of rupturing venous varicosities. Ascites occurs late and is due to portal obstruction.

There is nothing characteristic in the blood picture.

Some very interesting questions arise in considering Banti's pertaining to cirrhosis of the liver. Is the cirrhosis of the liver the chronic interstitial hepatitis of the older writers and especially this condition as described in the older pathologies a separate disease or is it a part and parcel, one with the Banti or splenic anemia? Is the disease primarily hepatic or splenic?

The Splenomegalies — Banti excluded. There are, aside from tumors, which are rare, two sources of origin for the massive spleens sometimes seen, Gaucher's Disease and chronic malaria—the "ague cake" easily very common within the memory of many of us.

The differentiation of a malarial splenomegaly is at least in the moderately advanced cases not difficult. The differentiation of a Gaucher from a Banti is more difficult. The vesicular or so-called malignant cell to be found generally thruout the reticuloendothelial system, but accessible practically to splenic puncture are characteristic. The massive enlargement of the spleen as compared to the other forms is also outstanding.

It is familial of about 20 years duration and begins usually in childhood. It must not be forgotten that in advanced Gaucher, the liver will also share in the enlargement which adds a confusing factor as to Banti.

Splenic Tumors: Splenic tumors may be dismissed with the brief statement that they are rare, that any and all varieties of neoplasms are known to occur and that the diagnosis is rarely made before operation. One fact stands out rather clearly in regard to neoplasms of the spleen which may or may not be of significance, that is, the spleen is rarely if ever the seat of metastatic growths. The writer has never seen a splenic metastasis.

### SPLENECTOMY—INDICATIONS

We have purposely avoided the discussion of such diseases as "primary" cirrhosis of the liver, pernicious anemia, myelogenous leukemia and aplastic anemia for the reason that splenectomy is still far aground in these conditions. Broadly speaking, splenectomy has not proven out in those anemias originating in the bloodforming portion of the reticulo-endothelial system. Its most striking results are to be seen in that end of the system which has to do with the disposal of the wornout elements. It is extremely probable that the spleen has to do with both blood formation and blood destruction. When the latter function predominates in the destructive way, the former can be easily spared and can be well compensated for.

This is strikingly shown in *hemolytic* jaundice where the destruction of the erythrocytes seems to be directly due to the vicious action of the enlarged spleen. It is gratifying to know that the mortality rate is low in this condition.

It is very likely that the gallstones found in about 50% (Moynihan) of these cases is secondary rather than primary.

Another striking illustration is seen in splenectomy for purpura hemorrhagica (essential thrombo-penic purpura). The platelets which seem to be the point of attack are astonishingly rapidly replaced. My own personal experience would indicate that operation should not be done in the acute fulminating type of the disease if there is a prospect of carrying the patient to a more chronic stage. It is to be noted in Giffen's report from the Mayo Clinic (Surgery, Gynecology and Obsetrics, Nov. 1927) that in only 4 of the 20 cases operated had the disease existed less than two years. Their mortality in these cases was nil. Most of our cases had existed

but a few weeks to months and the mortality was forbidding.

In the Splenomegalies proper, surgery has no specific influence. It merely relieves the patient of a troublesome burden. The mortality as given by Klapp (Surgical Clinics of North America, August 1928) in Gaucher's disease is 20%. While high, it is to be remembered that this disease is not self-limited and usually terminates life within 20 years, which usually means in early adult life since the rule is, it begins in childhood.

We are considering splenic anemia (Banti's Disease) surgically last because some of the considerations which will stand out in a striking way here, will apply in the other conditions for which splenectomy is indicated. The operation is still on trial in this condition. Spontaneous hemorrhages are not uncommon. They will occur also after splenectomy. Cirrhosis of the liver is an essential part of Banti's and is most likely the reason for the hemorrhages in these cases both pre- and post operative. The term Banti's or splenic anemia doubtless covers a variety of obscure conditions of the reticular system. We can never be sure that we are making an early diagnosis, that is, we are never sure of our diagnosis early. We do not know whether the disease begins in the spleen or in the liver. What we do know is that when the diagnosis is made, cirrhosis is obvious.

That may be the reason for the poor showing splenectomy has made. We must look to the internists and the endocrinologists for an early diagnosis in order to properly evaluate splenectomy for this condition.

There will be recurrences of hemorrhages in hemolytic jaundice and purpura hemorrhagica following operation. It occurs to the writer that herein may lie the explanation.

Blood transfusion is of more importance following than preceding splenectomy for the reason that the removal of a sponge like and sometimes massive spleen will take with it often as much as 1500 c. c. of the patient's blood.

In our Clinic, blood transfusions as a treatment have not diminished the bleeding in any of these conditions. We believe the results of surgery will be much better in these splenic or perhaps better said, reticulo-endothelial disturbances when diagnosis is made early enough to avoid the

cirrhotic processes in the liver which seem to bear an almost constant relationship of some kind.

### TECHNIQUE

The surgical difficulty of the spleen relates to:

- a. Hemorrhage operative and postoperative.
- b. The frequently poor operative risks offered.

The Bevan incision in left linea semilunaris with oblique upward and outward extension, ample in length to insure roomy accessibility, is preferable. After the clearing of the field and the packing away of the intestines, the next step is the mobilization of the organ. This, owing to the normal ligamentous attachments and acquired adhesions to the diaphragm is frequently the most difficult stage of the operation and will be associated with profuse hemorrhage, which until the spleen is delivered must be controlled with packs. In freeing the organ from the diaphragm. care is to be exercised against tearing into the splenic pulp for the reason that hemorrhage from this organ cannot be packed against and is only controllable when the pedicle is accessible. This is not accessible until delivery.

When freed from the diaphragm, delivery is easily accomplished and this exposes the pedicle at once. The pedicle containing the vessels may be clamped proximally and distally with rubber covered clamps or secured and cut between ligatures. Two things must be borne in mind.

- a. Identify and guard the tail of the pancreas.
- b. The friability of the vessels pedicle which demands gentleness.

When the spleen has been disposed of the diaphragm pack is to be gently removed under good exposure and bleeding points if any secured.

Now a search for a supernumerary spleen or spleens should be made. These are not uncommon. The writer once removed one in the right lower abdomen under the diagnosis of chronic appendicitis.

Finally a prompt post-operative blood transfusion if indicated.

## "LYMPHOSARCOMA IN A CHILD"

JOHN W. RILEY, M.D., F.A.C.S. OKLAHOMA CITY

This patient was admitted to St. Anthony's Hospital, Oklahoma City, Okla., on February 2, 1925. He was a Greek boy of 5½ years of age, born in this country, living in the country, and under fair conditions. His father was alive and well; his mother died about a year previously



of "pulmonary tuberculosis." He had one older brother, who was in excellent health.

During the summer of 1924, there were several cases of bloody dysentery in the

vicinity of which the family lived. The patient and other members of the family suffered from this infection. Recovery from this disease was apparently complete.

		BLOOD	*****			
TD /	** 1 **	Red	White			_
Date	Hgb. Dare	Cells	Cells	Index	Р,	L
2- 8-25	40% dare	2,630,000	1,900	.7	40	64
2- 9-25	27% dare 40% talg.	2,450,000	1,650	.7	35	6
2-12-25	33% dare	1,750,000	1,500	.9	43	5
2-16-25	28% dare	1,700,000	1,750	.8	48	53
2-18-25	29% dare	1,810,000	1,350	. 8	35	64
2-20-25	30% dare	1,700,000	1.650	.8	61	3
2-23-25	30% dare	1,890,000	2,950	.8	57	4:
2-25-25	33% dare	2,090,000	3,700	. 8	56	4
2-28-25	35% dare	1,940,000	2,650	.9	65	3
3-6-25	40% dare	2,750,000	2,250	.7	63	3
3-23-25	45% dare	2,470,000	3,900	.9	46	5

In the fall of 1924, he developed diphtheria and was given antitoxin, and his recovery from this disease was apparently satisfactory. A short time after his recovery from the diphtheria; while playing with his brother an ironing board fell across his abdomen. He complained of considerable distress at the time of this injury and for sometime subsequently. This distress continued, and it was subsequently noticed that his abdomen was enlarging, his face and limbs were swollen, purpuric spots were noticed on the limbs; blood was occasionally seen in the stools, cough and bloody sputum, and very evident dyspnoea was observed. Previous to the enteritis of 1924, he was an unusually healthy boy.

In December, 1924, he was taken to a nearby hospital and an abdominal section was done with drainage of the gall bladder. Following this operation he was in the hospital eight weeks. There was no improvement in his symptoms.

On admission to St. Anthony's Hospital, he was obviously very anemic. His skin was a muddy, but not a lemon yellow His weight was fifty pounds. There had been no apparent weight loss. His face was swollen and the tibias showed pressure imprint. On the skin of both limbs were fading ecchymotic lesions. There was an obvious shortness of breath and a croupy cough. The abdomen and lower chest were markedly enlarged. The lower chest projecting anteriorly over a very distended abdomen. The abdomen showed a pigmented upper, right rectus scar. The skin of the abdomen was stretched and tense, and the outline of the liver and spleen could be seen.

Examination shows temperature 98.6, and a tendency to slight elevation; pulse 120; blood pressure 88-60. Teeth and tonsils, normal. Lymph nodes, normal. Cyanosis of the lips and nails. Respiratory sounds were loud and rasping, associated with coarse rales. Heart appears slightly enlarged, heart sounds and muscle tone

n or mal. Liver dullness extends from the fourth rib to the crest of the ilium, the left lobe could be felt just above the navel. The spleen is easily felt and extends 8 cm. be-

low the costal margin. There was a tympantic note over the abdomen and left flank. The veins of the abdomen were distended. The scrotum was slightly edematous.

Transfusion was done by the syringe method, using the father as donor. His anemia had increased because of uncontrollable epistaxis.

#### TRANSFUSION

2-12-25- 20			
2-14-25-150			
2-18-25-200			
2-24-25-150			
3- 4-25-210	cc.	blood-no	reaction.
3-11-25-150	CC	blood-rea	ction

About February 20, 1925, patient complained of sore throat and culture showed

fusiform bacilli. In 48 hours both tonsils, pharynx and uvula were covered with greyish exudate; and great shreds of this material hung from the soft palate and uvula.

A 10 per cent copper sulphate solution was used as a gargle and the membrane disappeared entirely after the last dose of neosalvarsan. The patient showed considerable improvement for a fewdaysviz: edema was practically gone and

the spleen and liver on measurement showed very obvious decrease in size.

On March 24, 1925, his condition became worse and he developed evidence of a broncho-pneumonia. This process gradually progressed and he died on March 26, 1925.

A definite diagnosis was not made, but all evidence pointed toward a malignant process.

### AUTOPSY

The body is that of a boy of five and one-half years of age. There is a marked pallor of the skin, puffiness of the face, hands, legs, and scrotum as a result of the edema. The abdomen is very markedly distended — contrasting quite noticeably

from the practically normal condition of the upper chest. The veins of the abdomimal wall are distended.

Primary incision from the sternal notch to the pubes. On opening the abdominal cavity, the liver presented itself being very markedly enlarged, filling the upper

> Neo-salvarsan was given: 2-23-25— .1 grm. 2-27-25—.12 grm. 3- 4-25—.15 grm. 3- 4-25—.15 grm. 3-11-25— .2 grm.

right abdomen and extending over the left to the splenic area. There were quite firm adhesions present, due to the previous operation. Some scarring about the

fundus of the gall bladder, which seemed to be thin walled and normal in every way.

Liver weighed 2160 grams and was of a pale red color and had a white nodule present on the surface. The liver cut easily and the structures showed nothing particularly abnormal in gross appearance. A section was taken from the left lobe and also from the area where the nodule was present and was sent to the laboratory

URINE 2-8-25 2-10-25 2-16-25 2-23-25 2-28-25 3-25-25 Milky Yellow Yellow Yellow Color Yellow Turbid Acid 1,013 ft. React Acid Q.N.S. Acid 1,021 Acid 1,016 Acid Acid Sp. G 1,019 1,024 ...3 Albumen 0 trace trace trace ô Glucose 0 0 0 0 0 0 0 ŏ ŏ 0 Acetone Indican 0 0 trace 0  $\div^1$ Diacetic Diazo R. B. C. W. B. C. Casts 0 0 0 occas 0 few 0 0 occas occas 0 0 0 0 Cryst amor amor. very amor. amor. urates urates urates urates Organisms few few many few few Cells 0

## FECES

		1.130	H1313		
		P.M.			
	2-13-25	2-13-25	2-14-25	2-19-25	2-23-25
Color—Yello Consist sem React Mucus Pus Blood Fat—many i Bile plus fou Bact. many Parasites—n Food—no nc Blood Wass Hecht Grad	i-solid acid 0 0 fat acid of 1r tone foun g. cells:	d found -negative	0	Small 0	k. brown emi-solid Sl. acid amount 0 Ft. trace clus four many ne found 0

for microscopic study.

The spleen presented itself as an enlarged, purplish organ, with some adhesions present and it weighed 600 grams. It cut with more than normal resistance—section of which was taken for microscopic study. There were two small accessory spleens, one about the size of a cherry, and the other slightly smaller.

The abdomen contained only a moderate amount of fluid; some flecks of lymph about the coils of the intestines; no evidence of peritonitis. No tubercular condition found at any point in the abdomen. There was moderate enlargement of the retroperitoneal lymph nodes in the upper

abdomen—two of these were removed for microscopic study.

The stomach was opened and it was negative. Pylorus was negative. The small intestine showed some agglutination of the coils—suggestive of a possibility of some slight obstruction. The large intestine showed slight dilation of its first one-half. The descending colon was empty, as was also the rectum, and contracted. There was some scarring of the transverse colon



which may have been due to the previous operation.

The kidneys were enlarged to an almost unbelievable size. The right kidney weighed 740 grams; the left 750 grams. They resembled each other very closely These large masses encroached upon the abdominal cavity. They showed fetal lobulations. The capsules stripped easily and the appearance of the kidneys on all aspects was mottled, reddish, with hemorrhagic and white areas. On section the kidneys were found to be solid structures, except for dilatation of the pelvis, it not

being enlarged quite in proportion to the size of the parenchyma. Discoloration of the kidneys was present throughout the parenchyma of the kidneys. Section was taken for microscopic study. There were no nodules in the kidney structures.

Ureters—negative. Bladder—negative. Pancreas—negative. Chest—heart about normal size. Pericardial sac contained a moderate amount of pericardial fluid. There was a small amount of free fluid in the pleural cavity. The lungs showed some terminal pneumonic process in the posterior aspect, which was more noticeable on the left. This is undoubtedly relative to the fact that during the last part of his life he lay on the left side almost exclusively. Lymph nodes of chest were not enlarged. No nodules in the lungs. There was no evidence of tuberculosis.

St. Anthony's laboratory report on specimens — examination of the specimens showed lymphosarcoma.

Sections of liver, kidneys and lymph node were sent to Dr. A. C. Broders, Mayo Clinic, Rochester, Minnesota, and the following report was received:

"The sections of the liver and kidneys show extensive lymphosarcoma. There is also involvement of a lymph node. The section of spleen shows marked congestion associated with peri-splenitis. This case probably belongs to the type of lymphatic leukemia that has not appeared in the blood (aleukemic Leukemia.) Pathologists have pretty well agreed that lymphatic leukemia, lymphosarcoma and Hodgkins Disease are the same, with different manifestations."

The question arises in this case—"What relation did the trauma produced by the falling ironing board upon the abdomen of this child bear to the disease 'lymphosarcoma' that eventually developed?"

It occurs to me that this question cannot be answered until we know what causes lymphosarcoma or any other malignant process.

To offer it as an example of cause and effect without substantial evidence of proof, is in the opinion of the writer, mere guess work and unscientific.

### THROMBOPENIC PURPURA

# LEA A. RIELY, A.M., M.D., F.A.C.P. OKLAHOMA CITY

The various physiological functions of the spleen are not definitely known and in medical history it has been given the properties which have been bound up with romance and mysticism. It is said the spleen has been removed from runners among the ancients to make them more fleet of foot because the giraffe has been found to have no spleen. The only faculty they seemed to have lost by so doing was the ability to laugh.

We know that the functions of the spleen are taken up by other organs. The reticulo endothelial system and the genesis of the lymphatic are so scattered about that the loss of this organ leaves the patient with perfect physiological harmony and no apparent discomfort or deficiency trouble.

I have had a few observations of patients after splenectomy where the eosoniphilia was quite marked, being as high as 25%. Osler reports one where it reached the astounding height of 80%.

Since the spleen enlarges so consistently with any blood stream infection we know that it must be an important factor in phagocytosis. Due to the fact that it has so much hemosiderin deposited within it in hemolytic anemias and thrombopenias and the removal relieves the anemia it has been dubbed the "graveyard of the red blood cells."

Eppinger has even given the spleen endocrine function and calls hypersplenism a condition analogous to hyperthyroidism wherein the thrombopenic and hemolytic functions are carried on to a pathological degree due to some hormone being secreted in a pathological degree. Danilewsky was the first to assert that the spleen secretes a substance, i. e. splenotoxin, capable of acting on the bonemarrow. The rapid anemia after splenectomy out of proportion to loss of blood suggests that some such substance has temporarily ceased to be formed. A single dose of splenic extract given intraperitoneally will induce a rise in red cells and haemoglobin content in dogs who are not dangerously anemic. (Moynihan, "Spleen and some of its diseases".)

As regards the part of the bone marrow concerned with the formation of white cells it has been suggested that there is normally, a restraint of its activity through some substance secreted by the spleen.

Increased activity of the spleen leads to increased formation of leucosplenins and therefore consecutively to diminution in the number of white cells in the blood. After splenectomy there is a leucocytosis due to the removal of this restraint. In case II, there is an entire absence of polymorphonuclears and platelets with an enormous spleen. Evidently some form acting on the precursors of the blood element.

The part played by the spleen in the formation of red blood cells and neutrophilic leucocytes in embryonic life is everywhere admitted. In adult life the connection is usually only demonstrable under the influence of infections and in the various forms of splenic enlargement. Frank thought that an endogenous toxin arising in the spleen might give rise to lack of blood platelets also resulting in a hemorrhagic diathesis which is named "Essential Thrombocytopenia." hemorrhages were common to this condition and a plastic anemia he went further and tried to establish a close relationship between the diseases. In the former the action is directed against the thrombocytes and in the latter case, i. e. aplastic anemia, its action was extended to the granulocytic elements and their forerunners a condition which he called hemorrhagic aleukia. Frank hence puts the third corpuscular elements as a prime factor in hemorrhagic diathesis. Klinger in Sahlis Clinic opposes that view and explains the tendency to hemorrhage and thrombocytopenia as parallel manifestations which stand in no direct relations to each other.

(Minot gives this bit of history of Idiopathic. Thrombocytopenia: "Werehof in 1733 first differentiated the condition from other varieties of hemorrhagic diseases. In 1887 Denys noted the platelet reduction. Hayem and Bensande and Rivet called attention to the chronic type of the disease and Kaznelson first showed the striking results that follow splenectomy.")

Morrison and Lederer, in American Journal of Medical Sciences of November 1928, explains that the lack of cure of these cases, or a later return of the symptoms is due to supernumerary spleens or splenic structures which is left in the abdomen near the organ removed.

McElroy says that Kaznelson brings a grouping according to the mode of origin

of the thrombocytopenia.

In one case there is an injury to the mother cells of the bone marrow with deficient regenerative power; in the other, there is an extramedullary destruction of the thrombocytes in the reticulo-endothelial system. This classification is based on histological evidence.

Aplastic anemia shows no megacarocytes in the bone marrow and no evidence of thrombocytes or myeloid elements in

the spleen.

Thrombocytopenia shows megacarocytes in the reticulo-endothelial system, especially of the spleen.

In aplastic anemia splenectomy has no therapeutic effects while in Essential ful joints. Malaria 20 years ago while living in Arkansas. Had an attack of acute abdominal pain in right lower quadrant 18 years ago, with nausea but no vomiting. Arises at night to urinate about 5 A. M. Nervous temperament, poor sleeper, smokes a pipe, constant drinker, never drunk. No veneral history and negative Wassermann.

Father died of stomach trouble. Mother died of lobar pneumonia. One brother died of tuberculosis. One uncle had diabetes. No history of bleeders in the family.

For past fifteen years patient has had gastrointestinal upsets. Pain would come on after eating in one to three hours, eructation of gas very frequent. Two years ago had attack of "bloody flux" lasting two weeks during which attack he

#### Dr. J. B. McElrov

# I.—General symptoms: a.—Color of skin b.—Skin and mucous membrane hemorrhage

c-Mouth cavity

d—Spleen
e—Urine
f—Gastric secretion
g—Stool

II.—Blood Findings:
1. Morphology
a—Erythrocytes

b—Leucocytes

c-Blood platelets

Stasis experiment
 Bleeding time
 Retractility of clot

4. Retractility of clot5. Color index6. Bilirubin content

#### Aplastic Anemia

Alabaster white Usually pronounced

Frequently gingivitis Stomatitis, angina necrotans Often small, not palpable No urobilinuria Often disturbed Very slight urobilin content

Oligocythemia, progressive Poikilocytosis, polychromasia; reticulated cells absent Leukopenia, marked reduction of granulocytes, relative lymphocyto-

sis
Pronounced thrombopenia (adrenalin and splenectomy do not produce an increase of thrombocytes)

Skin hemorrhages Markedly prolonged Absent Usually one Reduced

#### Essential Thrombocytopenia

Variable

Periodical occurrence with free intervals

Numerous small hemorrhages almost always gingivitis Enlargement may be present Often urobilinogen Usually normal Normal urobilin content

Number variable Often evidence of regeneration

Often leucocytosis differential count shows nothing distinctive

During attack marked thrombopenia; after adrenalin and splenectomy an increase of platelet

Skin hemorrhages Prolonged during attack Absent Below one Normal

Thrombocytopenia the effects of splenectomy are brilliant where no supernumerary spleens are left to furnish a return of thrombocytophagic function.

The haemotologist is ordinarily the one who sees these cases before turning them over to the surgeon and the question of diagnosis is one of prime importance since the spleen is very seldom primarily involved but is secondary to tuberculosis, syphilis, carcinoma, the chief symptom in Banti's syndrome, pernicious anaemia and the legion of infective disorders with splenamegaly, familial jaundice, Gaucher's cirrhosis, polycythaemia, et al.

CASE I.

C. C. C. Male, aged 48, married. No history of rheumatism, swelling or pain-

vomited blood and passed frequent bloody stools. This was attended with abdominal cramps.

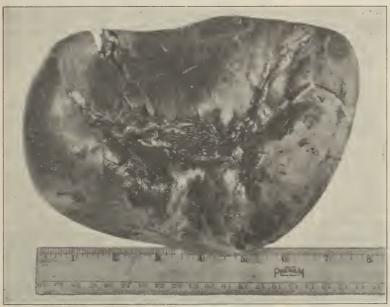
The past spring, patient spit blood at intervals for one week, coughed occasionally but not productive. Noticed blood in stools at some time. There was no acute disease noticeable then.

Condition cleared up until about one month ago when he again began to have bloody sputum. This time he gave history of upper respiratory trouble either before or after the haemoptysis. The haemoptysis continued at intervals for one month and was accompanied with nosebleed and macroscopic blood in stool. He recently has developed petechial and ecchymotic spots in the skin most noticeable on his

extremities. Spleen not palpable. Tourniquet test or capillary test (Rumpel-Leede) positive. Blood pressure 138-80, pulse 80, afebrile while in the hospital. Urine negative except slight trace of albumen and a few red blood cells. Physical examination essentially negative.

X-ray report of chest: Heart normal size, shape, and position, right side diaphragm negative. Some generalized fibrosis throughout all lobes. Increased density of few small nodules of all lobes. Left side diaphragm negative. Generalized fibrosis with increased density of few small nodules both lobes.—J. E. Heatley.

Reported sputum examinations negative for tubercule bacillis. Stools negative



PICTURE OF SPLEEN REMOVED IN CASE'II.

for parasites but positive for blood.

Blood type 4.

Blood Examination: Hbg. 78; Coag. time 6'50"; RBC 4,570,000; Anisocytosis and polychromatophilia. Blood platelets 67,500 with a control of 400,000, another time blood platelets 70,000 with a control of 310,100, at another time blood platelets 47,500 with a control of 215,000. WBC. 7,650; neutrophiles 78; large lymphs 3; small lymph 19; bleeding time 15 minutes. Clot non retractile.

A diagnosis of essential or recurrent thrombocytopenia was made upon the history and physical examination and laboratory findings to-wit:

Hemorrhages in skin and mucous membranes, blood in sputum, urine, feces; positive capillary resistence test, normal coagulation time, i. e., 4 to 6 minutes, prolonged bleeding time, (25 min.) slight retractility of clot. Platelets 76,500 as composed to normal control. Recurrence of symptoms from time to time.

The above diagnosis was concurred in by Dr. Long, Langston and myself and a splenectomy advised. He immediately left the hospital to seek less radical treatment but was operated in a few days at another clinic with relief of all symptoms and doing well and vigorous today with no recurrence of the bleeding. Operated 11-10-25, blood count taken: 3-25-26; RBC. 3,600,000; WBC. 10,150; P 64; small lymph 23; large lymph 6; F. 7; E. O.

Blood count taken: 1-8-27; RBC. 4,-550,000; WBC. 13,200; P 62; small lymph 22; large

lymph 11; F 2; E 2.

### CASE II.

L. E. R., male, age 51, married for 28 years, four girls living and well. One boy dead, cause unknown. Mother living at 75, father dead of pneumonia at 46.

Served in the army. Blacksmith for 21 years. Has small truck farm and orchard now. Has muscular and joint pain in mild degree since out of the army. Weighed 192 pounds six months ago. Looks as though he would weigh 160 pounds now. Uses alcohol very seldom, tobacco not at all. Denies veneral history. Had influenza

and pneumonia in 1918. Scarlet fever at 12 years of age. Diphtheria at nine years.

Gives history of not feeling very well for past two years but was seized four weeks ago at night with sudden sharp pain in the back (11-12 dorsal vertebrae) which radiated toward the sternum but pains throughout the entire chest. These pains left chest and then centered in the middle third of the left femur feeling like the bone was being broken. In one hour the pains had practically all disappeared, he became quite comfortable and went to sleep.

Another similar attack four days later lasting one hour. A third attack affected the chest alone with sternum and ribs still quite tender. One week before entering hospital, he noticed bleeding from

gums and bright red blood in his stools. Thinks he has passed a quart of blood from each place. Has had a dry hacking cough for past 30 days but no hemopty-



FIG. 1.

Low power of the Spleen showing the disarrangement of the general structure, and the hyperplasia, atypical morphology and arrangement of the patenthyma.

when a mass was palpated extending two inches from the edge of the ribs and down to the level of umbilicus with definite notch just below the ribs, most obviously due to an enlarged spleen. Definite ecchymotic spot on removing tourniquet from arm, i. e. capillary resistance test. (Rumpel-Leede.)

Patient was started on calcium lactate, grs. 10 every 3 hours. Was given 15 cc horse serum on 9-7-28. On 9-8-29 was given 400 cc of citrated blood intravenously. 9-11-28 was given 500 cc of citrated blood intravenously. 9-12-28 splenectomy was done by Dr. LeRoy Long but patient died three hours later from a massive abdominal hemorrhage. Spleen was easily removed but oozing from the bed

Dute	R.B.C.	W.B.C.	Platelets	Coag. Time	Bl. Time	N.	S.L.	L.L.
9- 5-28	3,010,000	14.000				51	36	13
9- 7-28	2,820,000	7,600	23,419	9'	15'		40	60
9- 8-28	2,550,000	21,500	,	5' 15''		1	77	13
9- 9-28	2,220,000	14,000		12'		4	10	60
9-10-28	2,050,000	,				_		
9-11-28	2,250,000	21,400		3' 50"	15'		5.9	34
9-12-28	2,310,000	26,000				1	20	1.8
9-12-28	2,030,000	26,200		4' 40"	15'	0	35	64

Date	Other Cells	Retie Reds	Blood Culture	Trans- fusion	Urine	Highest Temp.	Con- dition	Clot.
9-5-28 9-7-28				450	No. RBC	100. 2 R	Weak	N - D - 4
9- 8-28	Deg. 8		taken	450 cc.	Neg.	103 8 R 103 8 R	Fair Weak	No Ret
9-9-28	T6 D10		taken		*****	104 6 R	Weak	
9-10-28 9-11-28	LM7		Neg.	500 cc.		103 R 103 2 R	Weak Weak	
9-12-28	T26 M36	none	1108.		Alb. T.	104 R	Weak	No Ret
9-13-28	M1		Neg.				Weak	

sis. Had a severe pain in stomach one week ago lasting only a short time and not attended with any digestive disturbances or materially affecting his appetite.

Temperature ranged between 100 and 104 3-4 but three blood cultures taken both aerobically and anaerobically were reported negative.

He entered hospital 9-5-28 with slight pain and tenderness over the bones, especially sternum and left femur, bleeding from gums and bowels, numerous dark blue petechial spots affecting mainly the extremities, very few on the torso. Later he had petechial showers on the torso. Heart sounds were weak but do not show unusual sounds. No physical changes in the lungs. Blood pressure 100/50.

No changes in the nervous system. Became more and more stuporous but would arouse and talk intelligently. Tongue became progressively dry. Bowels moved fourteen times first day in hospital but quieted down afterwards. Abdominal cramps slight. Abdomen slightly tender but more so in the upper left quadrant

of the spleen was the cause of the hemorrhage.

### PATHOLOGIST'S REPORT—DR. JETER

The gross specimen consists of a spleen which is fairly firm, the surface somewhat lobulated, purplish gray, and rounded, size 25x15x8 cm. The capsule is tense. The cut surface is fairly firm, reddish purple, bulges and the pulp scrapes easily.

Microscopical examination shows an abundance of distinctly atypical, apparently premature type of lymphocytes, and scattered endothelial cells. There is a



FIG. 2. Microphotograph, high power same as Fig. 1.

slight fibrosis and generalized thickening of the trabecula. The normal structure and arrangement is distorted, apparently as the result of an enormous increase in the lymphocytic type of parenchyma. There is a deposit of scattered masses of dark brown pigment. The broad sinuses are not markedly injected.

Diagnosis: Splenomegaly (toxic type.) H. J. Jeter.

Fever is the rule in the more acute and severe cases like this and it runs a rapid and riotous course, in this case about three weeks. No symptoms or signs but what occurred except those due to hemorrhage or anemia. The severe pains in the chest and in the femur may have been due to periosteal hemorrhages. Minot says the chronic type shows less tendency to permanent recovery than acute, although some patients may even last a life time but the condition tends to become gradually worse.

If a given attack does not show signs of abatement within a few weeks an unfavorable outcome is probable but death or much less often, recovery may be delayed many months.

In both cases you have the history of severe abdominal cramp such as are characteristic of Henochs purpura. These hemorrhages may begin abruptly without warning or even after some days of disability. In favorable cases the symptoms usually disappear within three weeks as unexplicably as they arose. In this case it was short and fatal with no let up in symptoms. In the intermittent type as in case one, the hemorrhages occurred and then amated only to come again until splenectomy when they ceased and he has been strong and vigorous ever since with no return in nearly four years.

# BROMO SELTZER ERUPTION

EVERETT S. LAIN, M.D., F.A.C.P. OKLAHOMA CITY

The dangers of poisoning or the possibility of death from the taking of Bromo Seltzer has been mentioned several times in the Journal, although such accidents are perhaps more frequent than reported in medical literature. The following case report may be worth while as an additional reminder of a need for more propaganda against the careless dispensing and use of such widely advertised drugs.

### CASE REPORTS

Miss C. B., age 50, was referred by her family physician to Drs. Lain & Roland on June 18, 1927, with chronic granulomatous-like ulcers over her legs and below the knees.

History: Bromo Seltzer had been a family remedy in her father's home for the relief of headaches or to give rest since the patient was a child. She had used the drug for such ailments with increasing dosage and at shorter intervals until the present time when she confessed that its use had become a habit. She resolved several times to quit, and had ceased taking it one time for three months. A desire for the drug returned during a period of three or four years of poor health when her condition was diagnosed as tuberculosis. She was then confined in a sanitarium for two and one-half years. Her health improved when she had almost conquered the Bromo Seltzer habit.

Soon after returning home, while she was passing through the menopause, she felt a greater desire than ever for something to allay her extreme nervousness and insomnia and again resumed its use. During the last three or four months, she has been taking a heaping teaspoonful two to four times a day. She denied having been warned by any physician regarding the dangers of this drug. Luminal had several times been substituted for Bromo Seltzer, though this remedy did not seem to give her the same pleasing relief. About four or five months ago she noticed several deep red, elevated, slightly tender, nodular lesions developing over the anterior surfaces of the lower limbs. She also recalled that red papules frequently appeared over her face and back, but later disappeared. The nodules on the legs continued to grow larger until the overlying skin ruptured and the present ulcers appeared. She had not consulted a physician about her skin eruption until recently. Local applications were prescribed by her physician and it was suggested that the ulcers might be tubercular.

Examination: Patient has a dry, sallow, anemic-looking skin; is emaciated, extremely nervous and has but little desire for food. There is no cough, nor elevation of temperature though the pulse is soft and slightly quickened. There is no skin eruption above the knees excepting a few dimly pigmented macules scattered over the arms and back. Over the limbs

below the knees, there are several funguslike, deep red, granulomatous, somewhat excavated, foul smelling ulcerations, varying in size from one to ten centimeters in diameter. From each ulcer there is a scant discharge of a heavy sero-sanguinous fluid, with not much evidence of a secondary infection. The ulcerations are larger upon the lateral side of the left leg though not more numerous than upon the right.

The ulcers are not very painful, nor do they have an extensive inflammatory base. After noting the character of the lesions and securing history of patient's previous illness with the habitual taking observed, and only a total of five doses of intravenous sodium chloride solution were given. Within eighteen or twenty days complete healing of ulcers had taken place, and only pigmented areas remained to mark their location. The patient has since been a total abstainer from all such sedatives, has gained twenty pounds in weight, and is in the best health she has enjoyed in many years.

Quigley,<sup>2</sup> first through The Journal of the American Medical Association, called attention to the dangers of taking Bromo Seltzer by reporting a case with symptoms





of Bromo Seltzer, a diagnosis of bromide ulcers was easily made. The patient was urged to discontinue the drug at once, to take warm baths frequently, drink plenty of water, and isolate herself from all company which might in the least irritate her sensitive nature.

Treatment consisting of daily intravenous administration of 10 c. c. of 2% solution of sodium chloride (as suggested by Wile') was begun. Locally, wet packs of gauze containing cooling lotions were applied. After three days of such treatment, marked improvement of the ulcers was

simulating an overdose of both acentanilid and bromide.

The Journal' of February 10, 1906, in answer to an inquiry, published the formula of Bromo Seltzer as analyzed by the Committee of Chemistry and Pharmacy. Briefly stated, Bromo Seltzer contains approximately 10.5% potassium bromide, 4.5% acetanilid and 1.2% caffeine.

Robinson, Journal of August 18, 1902, reported a case of sexual impotence, together with symptoms of both acetanilid and bromide poisoning from the habitual taking of Bromo Seltzer.

Hemenway, December 1906, reported a death following an overdose of Bromo Seltzer to which had been added a second dose of acetanilid.

The Journal in an editorial of July 16, 1910, entitled, "The Deadly Headache Powder," reported a death as the result of a large dose of Bromo Seltzer followed by a dose of antikamnia, taken for relief of headache.

Waugh, has given the most complete case report of Bromo Seltzer poisoning we have found in American medical literature. His case was one of a generalized maculopapular bromide eruption with large, granulomatous ulceration upon the legs. Waugh's case was similar in many respects to the one herein reported, though he was more fortunate in seeing his case during the period of a generalized bromide eruption as well as the stage of ulceration upon the limbs.

Conclusion: Would it not be wise to prohibit by law the dispensing of any headache medicines or other depressing sedatives by soda fountain clerks? Should not the manufacturer of such drugs also be compelled to print in bold type upon the label of such remedies a precaution as regards the harmful effect of an over-dose or the avoidance of their habitual use?

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#### AND TREATMENT MANAGEMENT OF STIFF JOINTS

### EARL D. MCBRIDE, M.D., F.A.C.S. OKLAHOMA CITY

When to break up adhesions and when not to do so is a subject that requires considerable more study than is generally conceded. Injudicious attempts to secure motion in a stiffened joint by forcible manipulation is likely to prove disastrous. Properly selected cases often render surprisingly pleasing results.

Pathology: The adhesions may involve the joint surfaces or may interfere with joint action by binding their existence about the synoviol membrane, muscular attachments, capsule and bursae.

These fibrous tissue changes are the result of inflammation, which may be of traumatic, infectious or rheumatic origin. Blood extravasation occurs, the periarticular tissues are thickened and contracted, muscles are bound to their sheaths by inflammatory exudate, and newly organized tissue envelopes the whole joint structure. Atrophic changes then occur, and must be given due consideration in the treatment.

Prognosis: The prognosis of overcoming stiffness in joints will vary according to the age of the patient and the pathological changes. In a child good results may nearly always be expected if the case is properly selected. In an adult persistent stiffness is much more difficult to overcome and relapse is more apt to oc-

Treatment: Management and treatment must be based upon a thorough understanding of the following:

- 1. The etiological factor.
- 2. Stage of progress in the condition.
- 3. Worthiness of outcome.
- 4. The type of ankylosis.

Etiological Factor: The etiological factor will often aid in determining the type of ankylosis. For instance one should know that manipulation is contraindicated if the infection is tuberculous, syphilitic, or pyogenic. Stiffness as the result of trauma may usually be successfully treated by manipulation. Arthritis or bursitis of a rheumatic nature often fails to respond to forced manipulation, although with care and as the result of experience many cases may be selected and improved. Gonorrheal joints may be manipulated in the quiet stage but results are very uncertain.

The Stage of Progress: A joint should not be manipulated when in the acute stage of inflammation. A time should be chosen when the congestion, extravasa-tion and effusion had undergone absorption and organization.

Worthiness of Outcome: As to worthiness of outcome, a great deal will depend upon what the patient expects. One must also sometimes choose between the lesser of two evils. For instance there would be no advantage in producing a movable knee

that would remain painful; a totally stiff knee would be much more satisfactory.

Type of Ankylosis: Some of the more common types of fibrous ankylosis which respond to manipulation are as follows:

- 1. Shoulder: Fibrositis of traumatic and rheumatic origin characterized by limitation of abduction and rotation; often mistermed neuritis.
- 2. Ankle: Painful stiffness and deformity following a long period of disuse after injury.
- 3. Wrist and Hand: Limitation of gripping power following Colles fracture.
- 4. Knee: Following the long period of immobilization for a fracture, and adhesions from rheumatism and traumatic synovitis.
- 5. Foot: As seen in spastic flat feet and chronic gonorrheal arthritis.
- 6. Spine and Hips: Sacro-iliac and lumbar sacral adhesions.
- 7. Elbow: Following fractures into the joint in children and adults.

### CONSIDERATION OF CERTAIN JOINTS

Shoulder: Trauma and disease should be considered separately in the management of stiffness of this joint. Because of the freedom of motion of the scapula, limitation of the shoulder joint motion is often misjudged. Antero-posterior motion is usually about normal. Extent of abduction can be estimated only when the scapula is fixed. Internal and external rotation is usually limited and can be tested by fixing the elbow in flexion and rotating the humerus.

Dislocation, falls on the outstretched arm, and fractures, are the chief causes. Injury to the shoulder should be looked for with Colles fracture, or after fractures of the clavicle.

Gravity plays an important part in causing stiffness. It is a great deal easier to bring the arm down than it is to raise it. After injury it is best to keep the arm in at least partial abduction. It should never be strapped tightly to the side, if it is possible to avoid it.

Disease: There is a form of insidious, progressive, sub-acute stiffness of the shoulder which seems to be just as much a clinical entity as that of the more severe diseases such as tuberculosis and syphilis. It is usually diagnosed as neuritis, because the pain is referred down the arm and sometimes is excruciating. The

cause is focal infection aggravated by trauma. Usually the origin is from the teeth or tonsils. The pathology consists of fibrosis in the capsule and atrophy of the deltoid muscle. This condition is often present for many months previous to the time when comparatively mild trauma sets up acute symptoms of pain and stiffness. It is distinguished from true arthritis by having freedom of motion in flexion and extension but limitation of rotation and abduction. There is often no pain except when the arm is moved past its pathological limitations. Treatment of such a condition is treacherous. It must be managed in a much more cautious manner than traumatic stiffness. Foci of infection must first be removed. Physical therapy methods should be applied until all tendency to exacerbation from manipulation has disappeared. Gradual traction in bed by suspension and weights or an abduction splint are safer methods than manipulation. Forced manipulation should be carried out in two or more stages and followed by physical therapy.

Knee: In acute traumatic synovitis adhesions are formed in this joint more often than is generally suspected. The quadriceps muscle is often atrophic. It is not difficult to recognize the presence of severe adhesions but often there is merely a painful interference with completion of full extension or full flexion such as is seen when the synovitis has been due to a sprain instead of a direct injury. The adhesions in such a case are often in and about the tendons controlling the joint. Manipulation of a diseased knee joint is not successful and should not be attempted. Occasionally a gonorrheal knee may be manipulated but it is only indicated when there is good partial movement after all inflammatory signs have disappeared.

To manipulate the knee, place the patient so that the knee extends over the edge of the table. Free the patella first. Do not flex knee until patella is free. Hold the joint firm with both hands. Place the foot between the knees and start. Do not force the contracted extensor femoris to rupture. Start firmly but carefully to move knee in extension and flexion. Then rotate the leg by quick, firm movements. No splint is needed. Physical therapy and gymnastics should be started at once.

Ankle Joint: The most common injury to this joint is that of sprain. The next most common is fracture of the malleoli. In the treatment of sprain, immobilization

in a cast or in splints should not be continued for more than two weeks without instituting physical therapy treatment or permitting weight bearing. The bones and soft tissues of the foot become atrophic very quickly and there is a toxic fibrositis often superimposed upon the traumatic damage, which creates a painful ankylosis that is very difficult to overcome. The heel cord is often allowed to become shortened after sprains or fractures of the ankle and interferes with weight bearing until it is corrected by manipulation.

Manipulation of the ankle usually is not followed by a severe reaction: Manipulation under an anesthetic usually is sufficient to correct the deformity. Sometimes tenotomy of the heel is necessary. The foot and leg is put in a plaster cast extending from the toes to above the knee. The next day or as soon as possible, the patient should begin to bear weight and walk in the plaster cast. Physical therapy methods are of great assistance and the cast is bivalved for this purpose.

Wrist, Hand and Fingers: The wrist and fingers react severely after forcible manipulation and may become even more ankylosed following the operation. Favorable results may be obtained in many cases of stiffness which follow Colles fracture. The joints should be manipulated rather cautiously under gas anesthesia and repeated upon several occasions. A plaster cast may be applied for three or four days and heat and massage then begun. In some cases a splint may be applied and fingers gradually stretched by means of rubber bands upon adjustable pully. Active and passive exercises are a very important part of the treatment.

Foot: The foot responds to forcible manipulation extremely well. Even adhesions from inflammatory processes frequently may be broken up successfully. Gonorrheal rheumatism often produces extremely stiff, flat feet. Chronic cases, only, should receive forcible manipulation. Each joint is stretched and twisted to normal flexibility. A cast is applied and the next day, or as soon thereafter as possible, weight bearing is encouraged. On the third day, the casts are split and physical therapy started. At the end of three weeks, Whitman braces should be applied to retain correction. Passive and active exercises should be continued for many months.

Spine and Sacro Iliac: The vetebral joints may often be forcibly manipulated with good results. Sciatica may sometimes

be relieved by such procedures. Lumbar and sacro-iliac pain, when due to adhesions, may often be relieved. Deformity from arthritis of rheumatic nature may often be, to a certain extent, corrected by forcible manipulation. Such procedures must be carried out with utmost precaution and plaster jackets applied afterwards to maintain correction.

Elbow: The elbow does not respond well to manipulation. The reaction is usually severe and stiffness may be increased unless rigid follow up treatment of splinting and physical therapy measures are enforced. In children under twelve, stiffness following fractures in the elbow, will usually disappear within five or six months. In adults, even slight fractures in this joint sometimes produce marked limitation of motion. Multiple manipulation of mild force is better than too severe force.

Hips: The hip is not as easily ankylosed as the less movable joints. Abduction deformity is to be avoided. In tuberculosis or pyogenic arthritis the hip should not be manipulated. Correction by closed osteotomy is better. Manipulation after fracture of the neck of the femur is not advisable. The hip may be successfully manipulated in a very few cases of osteo arthritis. Extreme precaution, however, is necessary.

### SUMMARY:

1. Closed, forced, manipulation is of great value in selected cases.

2. The joints of the body vary in their response to manipulative treatment and present characteristic features which should be thoroughly understood.

# THE BOND OF HUMAN SYMPATHY\*

# L. J. MOORMAN, M.D., F.A.C.P. OKLAHOMA CITY

I come before you today with a message from one honored profession to another, and while I come with pride in the great profession to which I belong, I would have you know that this pride is chastened with humility. These two great professions which we represent have a common point of origin, an enduring bond in the "primal sympathy of man for man"—the desire to help those in sorrow, need and sickness.

The stern race of man has been gradually softened by the instinct of self-preser-

<sup>\*</sup>Read before a joint meeting of Oklahoma State Nursing Association and the Oklahoma City Public Health Nurses.

vation, plus the longing to help a loved one and the passion of maternal love. In his wonderful discourse on the evolution of man Lucretius pictures the growth of sympathy "when with cries and gestures they taught with broken words that 'tis right for all men to have pity on the weak." The medical historian, Doctor Payne, said "the basis of medicine is sympathy and the desire to help others, and whatever is done with this end must be called medicine." In the light of this interpretation nursing in its truest sense is medicine.

It would be interesting, if we had the time, to review the history of medicine, and then discuss the system of trained nursing and its part in the prevention and treatment of disease. What a wonderful evolution this would reveal! Think of the poor savage in the latter part of the neolithic period, with never a thought of anesthesia, having holes picked in his skull with a rough piece of flint to let out the confined demons. Skulls with these disks of bone removed have been found in nearly all parts of the world. This is representative of primal sympathy as practiced before the "accidental discovery of copper in Egypt forged the instruments that raised civilization out of the slough of the stone age." Compare this procedure with the present decompression operation performed by a skilled surgeon with improved instruments in a modern hospital with complete anesthesia prompted by definite indications and safeguarded by all modern therapeutic means, including the trained nurse. This one example is sufficient to show the span of progress.

There have been important discoveries too numerous to mention, but pause for a moment to think of the significance of anesthesia; of vaccination; of the relation of bacteria to disease; of antitoxin or of insulin; but none of these outrank in importance the introduction and application of the system of trained nursing. Today all the enlightened forces of society are interested in and influenced by the trained nurse. She has measured the depths of human misery and suffering and plunged to the rescue.

On this occasion I am glad that I have the privilege of speaking to both the private duty nurse and the public health nurse; the one sitting at the bedside with trained mind and responsive hand, ready to administer the soothing, comforting, and often life-saving therapy; the other standing guard against disease and pestilence, thus safeguarding the homes of an unsuspecting public. Having rightfully placed your profession on this high plane, and having given you this "Pisgah sight", or "lift into the blue", I desire to sound a warning. In this day of material prosperity and organized effort you may be tempted to let go of the golden cord which runs without interruption from our common point of origin, the bond of human sympathy. "From point to point it still runs, and when near you feel it as the clear and bright and searchingly irresistible light which Truth throws forth."

The sick, both rich and poor, are better cared for today than ever before in the history of the world, and yet something has happened to disturb the relation between the doctor and patient and between nurse and patient. The service is more impersonal, the bond of sympathy is not as manifest as it used to be. In the medical profession this may be partly accounted for through the present tendency toward early specialization; mechanical and laboratory aids in diagnosis; hospitalization of patients; diagnostic clinics; group practice and highly specialized forms of treatment. After the patient receives all the knowledge and all the service that may flow through these channels, he is often left with a feeling that he needs a physician who is willing to sit at the bedside and bring to bear a sympathetic intelligent application of this knowledge to his individual problems; a physician who realizes that the human organism is still intact, constituting an integral part of society, possessing a human personality and having the right to demand consideration as a composite whole.

Just what has happened to the nursing profession. I am not able to say. I am sure there has been no wilful departure from the principles laid down by "The Lady with the Lamp", and yet something is wanting in the dreary hospitals of pain; the house of misery is not always cheered as you "pass through the glimmering gloom". You must not misunderstand me; I do realize that your profession means more today than in the days when Longfellow helped to idealize "The Lady with the Lamp". You did change the atmosphere of the hospital and the sick room. With you came cleanliness and comfort. sunshine and fresh air. You have a record which demands jealous keeping. You must not allow the present distracting influence to rob you of human sympathy. While

the people at large are doing more for the sick and the poor than has ever been done before, they are doing it in an impersonal way. They are contributing to the support of organized agencies whose salaried representatives dispense charity in a business-like manner. As a rule, those who contribute, are giving up no comforts; they are putting forth no effort. They may be inspired by human interest stories, but they are denied the reward which comes through personal service and intimate contact with those who are in need. In my opinion the psychological reaction to this situation, which has grown out of our material prosperity and organized efforts is threatening the bond of human sympathy, and pressing hard upon the heels of idealism.

You are most fortunate in that your service to humanity is so vital and so intimate that you are still in a position to practice what Portia preached.

# EFFECT OF ANESTHETICS ON HEPATIC FUNCTION

Sanford M. Rosenthal and Wesley Bourne, Montreal (Journal A. M. A., Feb. 4, 1928), have undertaken to study the effects of various anesthetics on the liver, as indicated by bile pigment disturbances and by the bromsulphalein test for hepatic function. They found that brief periods of chloroform anesthesia are sufficient to produce immediate and delayed toxic effects on the liver; half an hour of chloroform causes injury that requires eight days for functional recovery, while two hours of anesthesia requires six weeks to return to normal. Disturbance of function could be demonstrated with the bromsulphalein test long after pigment metabolism had returned to normal. Ether produces a definite but transitory impairment of function. Recovery is usually complete in twentyfour hours. Nitrous oxide and ethylene administered through a mask did not produce any change in the bromsulphalein test for hepatic function or any disturbance of pigment metabolism. Nitrous oxide and ethylene given in a closed chamber with poor oxygenation caused both immediate and delayed toxic effects on the liver. Cyanosis in itself increases the toxicity of anesthetics on the liver. Large doses of morphine in dogs cause considerable depression of function, with complete recovery in twenty-four hours. Ethylene would seem to be the anesthetic of choice for operation in severe liver disease.

# ENCEPHALITIS AS COMPLICATION OF MEASLES

J. H. Musser and G. H. Hauser, New Orleans (Journal A. M. A., April 21, 1928), report that during an epidemic of measles, 351 cases in all were seen by one of the authors, who was struck by the occurrence in some of the patients of various, rather irregular, neurologic symptoms. These symptoms were almost entirely observed in small children. They seemed to depend on irrita-

tion of the meninges with a concomitant increase in the intracranial pressure, or to be the result of pathologic processes in the encephalon. Eight of these cases came to autopsy. The striking feature of the condition when observed grossly was the presence of numerous discrete punctate hemorrhages throughout the brain. Microscopically, the observation peculiar to this type of encephalitis was perivascular hemorrhage about some of the small vessels of the brain. None of these cases presented any clinical or postmortem evidence of tubercuolsis or of syphilis.

# MENSTRUATION AND MENSTRUAL DISORDERS

Emil Novak, Baltimore (Journal A. M. A., Feb. 4, 1928), urges caution in the therapeutic application to human patients of the results recently obtained through studies in animals, valuable as these studies have been. His own results with folliculin therapy have left him doubtful of its efficacy, and this seems to have been the experience of others as well. In cases of hypofunction of the ovary, particularly in amenorrhea, it would be surprising if follicle injections in themselves were successful in restoring menstruation. It is much more rational to mimic what is believed to be the normal sequence of events, and to give a series of injections of follicle substance, followed by a series of injections of lipoid-containing corpus luteum extract. Novak's only encouraging results have been with this plan of treatment, which he believes to be far more rational than the injection of either follicle substance alone or corpus luteum extract alone.

# REGENERATION OF BLADDER FOLLOWING RESECTION

On the basis of their experimental study, Herman L. Kretschmer and K. E. Barber, Chicago (Journal A. M. A., Feb. 4, 1928), assert that extensive resection of the bladder is followed by the formation of a new bladder The newly formed bladder fulfils completely the function of the old bladder in that it is capable of retaining the urine for many hours and of discharging urine in the normal manner. Incontinence as a permanent complication does not follow even the widest type of resection. From the histologic picture and its close resemblance to the normal bladder, it would appear that the newly formed bladder is the result of regeneration.

# INJECTION OF PAROTID GLANDS WITH IODIZED OIL

Haddow M. Keith, Rochester, N. Y. (Journal A. M. A, April 21, 1928), reports a case of parotitis in which iodized oil was injected for diagnostic purposes. He says that injection of the parotid glands with iodized oil may be carried out with from 0.5 to 1.5 cc. of the oil, a 10 cc. syringe and a steel needle with a rounded point used. With this method, the iodized oil will penetrate into the finer ducts of the gland, the iodized oil is removed within twenty-four hours. The anatomic relations of the parotid gland can be demonstrated in a roentgenogram by this means, and abnormalities in the size and shape of the ducts can readily be made out.

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### EDITORIAL

### OKLAHOMA UNIVERSITY SCHOOL OF MEDICINE

The Medical Department of Oklahoma University has long been the pride of every Oklahoma physician acquainted with the pioneering and struggles of Oklahoma's citizenship. For a long time the University only maintained a two-year course, this was finally enlarged when it was seen that in order to be second to none, that is to attain class "A" rating, it would be necessary to go to great financial lengths in the construction of hospitals, school buildings and equipment. This has all been done. There are no laggards on the faculty

and keeping up the interest of the University and maintaining them to the highest point at all times has been the aim of the individual faculty members. Elsewhere is a reproduction of the new, fine, modern, most thoroughly equipped and recently completed building housing the Medical School.

# OKLAHOMA CITY'S HOSPITAL RESOURCES

The comparatively superb hospital facilities of Oklahoma City have more than kept pace with the astounding development in other great material resources of the city. From the earliest the city was fortunate in having as medical citizens men of great ability and foresight who planned and built for the future needs of a great city. It is doubtful if any other city with the exception of Rochester, population considered, can equal the hospital resources of our State Capital. Listed among the splendid institutions are St. Anthony's Hospital. This 200-bed institution was organized in 1899 by the Sisters of St. Frances and has since been operated by the order. Its departments are medical, surgical, obstetrical, X-ray diagnostic and treatment, orthopedic, occupational, laboratory, both diagnostic and research, and operates a training school for nurses, which school now numbers 80. This hospital also has a tuberculosis dispensary and is in close affiliation with the State University Medical School.

Wesley Hospital was organized in 1909 by Dr. F. K. Camp, now of Palo Alto, California. This hospital had its origin in a portion of a floor of a down-town building containing a few beds, operating room, etc., and was called St. Luke's Hospital. Later an apartment house was purchased and converted into a hospital, changing the name to Wesley Hospital. After the world war a group of physicians, who had been on the staff of the hospital, returned and organized the Oklahoma City Clinic, which bought Wesley Hospital and operated it until 1926, when a new 60-bed addition was built. The total capacity is now 115 There are four operating rooms, clinical and X-ray laboratories as well as the necessary kitchens, dining rooms and business offices; a nurses' home accommodating from 50 to 75 nurses is now being constructed. The hospital holds an A-1 rating by the American College of Surgeons and the Clinical Laboratory is on the

accredited list of the A. M. A. The equipment is modern and is designed to supply the needs of a high class clientele. It is operated upon open hospital plan; has a visiting staff of some 40 or 50 Oklahoma physicians. It holds a round-table meeting each month.

State University Hospital is one of the largest general hospitals in Oklahoma City. The present buildings were opened in August, 1919, with 46 patients; since that time the general hospital has grown into an institution of 275 beds. The plan of operating provides for every needed department necessary to the practice of modern and scientific medicine. Two years ago the legislature appropriated \$300,000 for the construction of the Crippled Children's Hospital, which has been built on the same grounds with the general hospital and in this institution there are now 100 available beds; when completed the entire organization will provide 450 beds. The clinical staff is limited exclusively to the faculty of the School of Medicine, consisting of approximately 80 members. There are only 20 private rooms in the institution, the remainder being devoted to the care of indigent sick. The institution is supported by state appropriation and in part by patients, counties, municipalities or organizations committing patients to the hospital and assuming financial responsibility for the expense.

The above three are the leading general hospitals of Oklahoma City, but there are other very good, efficient and efficiently conducted institutions, among which are the Baptist, McBride's Re-Construction Hospital, devoted to orthopedic, plastic and industrial surgery, Oklahoma City General Hospital and Training School for nurses, and the Moorman Sanatoria, which specializes in the treatment of tuberculosis. There are several highly efficient clinics and diagnostic groups which must not be forgotten in estimating the great medical resources of the Capital City.

The relationship existing between the various institutions of Oklahoma City and the many score of able physicians is probably as nearly ideal as is to be found in any city of the Southwest.

### Editorial Notes -- Personal and General

MUSKOGEE COUNTY MEDICAL SOCIETY were guests of the U. S. Veterans Hospital staff, February 11. The meeting was in charge of Dr. E. Levy. After a short address by Dr. E. J. Rose, Dr. Shade D. Neely presented two cases of renal diseases; one mutiple renal stone, right kidney about to undergo operation and upon which operation for a large left ureteral stone had previously been performed. Dr. Neely also presented a case which could not be diagnosed, consensus of opinion being that the kidney condition was either a tumor, congenital deformity or malformation. Dr. W. B. Tilton presented a case of spastic colitis, simulating gall-bladder disease. Dr. H. B. West presented a case of psychoneurosis hysterical in type.

THE FITE CLINIC, Muskogee, has moved into very elaborate quarters, 6th floor Barnes building. Practically the entire floor is set aside for the use of the Clinic. The scope of work is very broad, including general and special surgery, gynecology, obstetrics, internal medicine, pediatrics, dentistry and everything necessary to make a complete diagnosis. There are laboratories with technicians in charge, X-ray and radium; basal, metabolic ratings, and electro-cardiographic machines. Physicians composing the Clinic are Drs. F. B., William Patton, and E. Halsell Fite, J. L. Blakemore, F. B. Dorwart, S. D. Neely and C. V. Rice.

LOGAN COUNTY MEDICAL SOCIETY met at Guthrie February 26. The physicians tendered a banquet to their wives. The decorations were in pink and green. Dr. L. A. Hahn acted as toastmaster. The speaker of the evening was Dr. Le-Roy Long, Oklahoma City. There were also talks by Mr. LeHew and Drs. L. H. Ritzhaupt, C. B. and E. O. Barker and R. F. Ringrose.

LINCOLN COUNTY MEDICAL SOCIETY met at Wellston February 6, guests of Drs. Murray and Erwin. The Society discussed the problem of a County Physician for the indigent sick but could come to no definite conclusion.

VETERANS OF THE WORLD WAR, suffering from nervous and mental disabilities would be further provided for if a bill introduced in the legislature becomes a law. \$107,500 is asked for the construction of two additional wings to the separate ward now existing for the purpose and maintained at the Central Oklahoma Hospital, Norman.

JEFFERSON COUNTY MEDICAL SOCIETY held its regular monthly meeting February 4, at Waurika. Drs. Basil A. Hayes and C. J. Fishman, Oklahoma City, gave papers illustrated with lantern slides. Dr. Hayes spoke on rectal diseases and Dr. Fishman reported a case of facial infection, and spoke on "Meningitis, Polio Encephelitis and Anterior Polio Myelitis."

STEPHENS COUNTY MEDICAL SOCIETY held their monthly meeting at Duncan in February. Dr. Ray M. Balyeat, Oklahoma City, delivered an interesting lantern slide lecture on "Allergy in Hay Fever, Asthma, Hives, etc." Dr. W. T. Salmon gave a lecture on "Peri-tonsilar Abscess."

KAY COUNTY MEDICAL SOCIETY held their monthly meeting in Blackwell February 8. Dr. LeRoy Long, Oklahoma City, gave a paper on "Goiter, Its Diagnosis and Treatment."

CARTER COUNTY MEDICAL SOCIETY held their annual banquet February 12, at Ardmore. Drs. C. J. Fishman and LeRoy Long, Jr., Oklahoma City, were guests of the evening and gave interesting talks.

AMERICAN COLLEGE OF PHYSICIANS TO HOLD THIRTEENTH ANNUAL CLINICAL SESSION IN BOSTON, APRIL 8-12, 1929.

The American College of Physicians will hold its Thirteenth Annual Clinical Session in Boston, April 8-12. Dr. Charles F. Martin, Dean of the Faculty of Medicine, McGill University, is President of the College this year, and Dr. John H. Musser, Professor of Medicine at Tulane University Medical School is President-elect and will be inducted to the presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson Professor of Clinical Medicine at Harvard Medical School and Chief of the Medical Service at the Massachusetts General Hospital is General Chairman of all Boston Committees having charge of arrangements for the Clinical Session of the College in April.

The program provides hospital visits, clinics, demonstrations and ward-walks during the forenoons at fifteen different Boston hospitals, and for general scientific sessions each afternoon and evening in the Assembly Room of the Hotel Statler, which will be headquarters. Eminent authorities in their special lines will present the results of their work before an audience competent to appreciate the value of the contributions.

A Symposium on Deficiencies will take place on the first evening of the session, and will be of particular interest because of the fact that deficiencies are nowadays assuming a far more wide-spread and important role than had heretofore been anticipated. They have come into their own as factors producing acute and chronic disease on a par perhaps with infections. The Committee has secured for the program men who can speak with authority on a variety of aspects of this important subject.

Another special feature is a review of the present status of vaccine and serum prophylaxis and therapy, designed to give the internist a rapid survey of the field. The speaker, Dr. Benjamin White of Boston, is an authority on these subjects and can give the high spots in rapid and yet forceful fashion.

The annual banquet of the College will be held Thursday evening, April 11, when Dr. George E. Vincent, President of the Rockefeller Foundation, will deliver the chief address. The Convocation for the conferring of Fellowships, will take place Friday evening, April 12. Dr. Charles F. Martin of Montreal, will deliver the presidential address.

Programs and details concerning reduced fares, admission, etc., may be secured from the Executive Secretary, E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa.

## ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D. 717 North Robinson Street, Oklahoma City,

So called Calcaneo Apophysitis. A. Merlini. Arch. di Ortop., XLIV, 97, 1928.

The author, on the basis of a personally observed case in which roentgenological alterations were more marked on the side considered clinically healthy, arrives at the following conclus-ion: There exists an affection involving the posterior part of the os calcis which develops in adolescence with pain, both spontaneous and provoked on pressure at the sire of insertion of the Achilles tendon, with swelling of the soft parts of the heel. It may develop sometimes following gymnastic feats as jumping, running, etc., but often develops without known cause. It is benign and is cured spontaneously or with rest in bed. The affection may be compared to the so called localized disturbances of growth which occur at the age of puberty. It still lacks a true clinical individuality and is not well understood in regard to its etio-pathogenesis, for which have been proposed various theories (trauma, inflammation, dystrophy, endocrine disturbances, etc.) The roentgenological picture is not characteristic: the particular aspect of the epiphysis, of the epiphyseal line, and of the calcaneo metaphysis, according to the author, must be considered as different modalities of the process of ossification, which may vary between certain limits according to the country, the race, the sex, and the individual body development, etc.

Lesions of the Seasamoids of the Great Toe. G. Betocchi. Arch. di Ortop., XLIV, 58, 1928.

The author reports twelve personal observations of fracture and congenital divisions of the seasamoids of the great toe and discusses especially the differential of these two conditions. In regard to the mechanism of fracture he notes that only in thirty-four per cent. are these fractures found associated with lesions of the phalanges or of the metatarsals. In these cases it is almost always a matter of direct fracture. In the cases in which the seasamoids alone are involved, he has noticed that the fracture by direct trauma forms thirty-seven per cent. and in these cases it is always and only the external seasamoid that is involved. Granted that the fracture is for the most part by indirect violence, it results that more easily and more frequently it is the internal seasamoid that is involved. Hallux valgus would be a predisposing cause. The author considers finally the cure and the prognosis of these lesions with reference to their industrial importance.

Calcaneocuboid Fusion and Flat Foot. D. Bargellini. Arch. Italiano di Chir., XXI, 387, April 1928.

The author describes a case of "pes planus reflexus," bilateral rigid flat-foot of high degree. The roentgenogram reveals a calcaneocuboid fusion, deformity of the astragalus and hypertrophy of the tubercle of the scaphoid. For the etiology of the calcaneocuboid synostosis the author believes in a congenital origin. For the pathogenesis of the case he considers that the presence of various skeleton anomalies involving the os calcis, the astragalus, and the scaphoid does not allow one special theory to be held, but gives value to the concurrent action of the multiple anomalies encountered. In regard to the late

clinical manifestation and the aggravation of the defect at the epoch of the greatest skeletal growth, he believes that the bony anomalies furnish a predisposing field, but that static influences are the factors causing the onset. For the cure; cuneiform resection, with base downward, of the scaphoid, which permits raising the apex of the mesial arch; plaster apparatus for two months, and then weight-bearing.

Isolated Tuberculosis of the Carpus; Its Diagnosis and Treatment. Merrill C. Mensor. California and West. Med., XXIX, 336, Nov., 1928.

One case is reported. A girl of fourteen had an injury to her right wrist from a fall. Since the roentgen ray was negative, a diagnosis of sprain was made and after three weeks in a splint, the patient was discharged as cured. Seven weeks later, the symptoms returned. At this time, the only clinical findings was localized tenderness over the navicular bone. A new roentgen ray with special reference to this bone was negative. The wrist was again immobolized in hyperextension in a plaster splint. Although the subjective symptoms subsided under immobilization they immediately returned on removal of the splint. Four months after the original injury, linitation of motion and muscle spasm were still definitely evident. Another ray then showed an irregular line through the navicular which looked like a fracture.

Operation was then done. A small amount of thick pus was evacuated on opening the joint. The navicular bone was then removed. Due to softening, it came out in several pieces. The wrist healed quickly and after four months in a cast, it was given complete freedom. Except for slight sensitiveness for the first months, there was no return of symptoms. One year later, the wrist showed no deformity or limitation of motion and strength was practically normal.

Laboratory examination of the pus and bone fragments provided the diagnosis of tuberculosis.

It was thought that the fracture of the navicular was a pathologic one which resulted subsequent to the original injury. It is shown by the progress of the case that it is possible to remove an isolated carpal tubercular bone before the disease has spread to the entire carpus, thus insuring a good functional wrist.

Volkmann's Ischaemic Contracture with Especial Reference to Treatment. Sir Robert Jones. British Med. J., II, 639, Oct. 13, 1928.

The opening paper of the Section of Orthopaedics at the annual meeting of the British Medical Association in 1928, was delivered by Sir Robert Jones upon the above subject. After reviewing the history of the disease from Volkmann's classic paper in 1875, he described the pathology of the condition in the light of the clinical conditions which give rise to it and of the work of Brooks and Jepson. He concurs with Brooks that the lesion is essentially a vascular one and due chiefly to obstruction of the venous return from the limb. While this obstruction to venous return is most frequently produced by the flexion of the elbow used in the treatment of the same, disability, he rightly points out that Volkmann's contracture may arise without any operative in-terference at all. This is a point of very great medicolegal importance, since the impression has arisen that every case of Volkmann's contracture is a reflection upon the manner in which the patient is treated. He quoted several cases from

his own experience, in which the contracture developed in cases in which supracondylar fractures of the humerus were not treated by flexion or restraining apparatus. In each of these cases, the preliminary examination of the patient showed so much interference with circulation that treatment of the fracture was considered inadvisable.

Most of his paper is devoted to discussion of treatment of the condition. This is divided into two parts-prophylactic treatment and treatment of the established ischaemia. His rules for the prevention of this serious complication are: (a) avoid circular compression; (b) reduce dislocations and displaced bone, since they of themselves may interfere with circulation by pressure upon vessels; (c) avoid all kinds of splints, especially if there is much swelling; (d) use no force in flexing the elbow; (e) critically watch all cases of fracture about the elbow for the first few days for evidence of impaired circulation. In his experience, treatment of the established ischaemia is far from satisfactory. In the early stages, he is disposed to feel that incision of the fascia with exacuation of the extravasated blood should be a valuable procedure, though he has had no personal experience with this method. In the later stages, he places reliance upon long continued stretching of the contracted structures. He states that by this method a considerable amount of improvement can be obtained, though restoration to normal is not possible. If nerves have been severed, they should be sutured. Multiple tendon lengthenings he feels are of less value than prolonged stretching painstakingly supervised. He condemns the operation for shortening the bones. Max Page's operation for detaching the origin of the flexor muscles and their downward displacement, he feels is worthy of further trial.

### UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D 1010 Medical Arts Building, Oklahoma City

To be in on the ground floor is a wonderful asset, I suppose nearly always in the business field.

But to be an early worker in a comparatively new field has its drawbacks,

I can well remember when the appendix in the field of surgery was a bone of contention. Certain doctors were avoided by the laity and profession alike because they always operated for appendicitis.

Then the tonsils had their day. There was a wave of tonsilectomy for everything, the nose and throat specialists were criticised because they said removal of tonsils would relieve rheumatism.

Then came the teeth with the same conditions prevailing.

And now in a more limited way is cystoscopy and pylography coming in for their share of abuse and misunderstanding.

I wonder (I was too young to know at the time) if the surgeon who diagnosed and removed appendices was curtailed by the doctor on the

case by being told to see if this case had appendicitis by palpation over McBurney's point and allowed no other diagnostic meaneuvers.

I wonder if the throat specialists were sent for and told to make a diagnosis on the history only.

I wonder if the dentists or others are told to "just look at the teeth and X-ray only two," then asked for an opinion as to there being the foci of infection.

I wonder if some surgeon had a post-operative ventral hernia. All appendectomys were in disrepute.

I wonder if someone had a post-operative hemorrhage from tonsilectomy if the whole group of specialists were condemned.

I wonder if because some patient suffered after having several or all teeth removed the whole process of removing teeth is criticised.

Still many physicians are asking for urological consultants and describing just what should be done, they say—"I want this and that done because you are liable to carry infection further."

Just do so much and no more because it will cause a patient pain.

I want a cystoscopy examination but no pyelogram because of the probability of this or that.

Do they tell the surgeon how to close the belly—do they tell him how and when to operate?

Do they tell Dr. Doe to take out just one ton-

Do they tell the dentist to use elevators only on this case?

Then above all do they make their own diagnosis, preparation, etc., then tell the consultant to come in and do their work regardless of conditions?

And still they blame cystoscopy because the patients have some pain.

Some patients will have some pain regardless, but so do some patients have hemorrhage after tonsilectomy and it is not a rare occurrence for gas pains to develop after an appendectomy and it does not reflect on surgery or the surgeon.

The sequelae of the flu is beginning to appear. I have already seen several cases with post-flu pyelitis.

It will behoove the family doctor to keep a close watch upon the urinary findings.

Do you know that a chronic prostatitis and trigonitis can and frequently does simulate appendicitis?

There is going to be a post-graduate course in urology given by the extension department of the University of Oklahoma late in March, the big-

gest thing for urology and the public alike would be for a number of surgeons and internists to take the course.

Just today a prominent doctor described a case in which he traced a stone in its descent from the kidney down and is probably lodged at the uretal orfice. He said that he had been waiting several days for the stone to drop into the bladder because he did not want to subject the patient to the expense of cystoscopic work. This, of course, is considerate on the part of the physician, but the patient will probably pay in the way of kidney damage for his economy.

Ureteral Stricture.—Budd C. Cordus in the Illinois Medical Journal, for November, 1928, says that he believes ureteral stricture, whether congenital or acquired, to be the cause of upper urinary tract infection in a large group of cases. Its early recognition will save many kidneys from destruction and removal.

One must constantly bear in mind that the ureter is one of the most delicately constructed organs in the body. If we are to be successful in our endeavor to promote good drainage, care, gentleness, and patience must be foremost in our thoughts.

Gonnorrhea in Women.—C. Bucura (Wiener Klinische Wochenschrift, October 18, 1928) discusses the treatment of gonorrhea and its complications in women.

He states that we cannot too strongly condemn the practice all too common of pronouncing a woman well on the basis of one or two negative findings. If a woman is known to have been recently infected no such test is to be relied upon as proof of cure.

He extols the virtue of treatment with gonococcus vaccine and considers it should be our bulwark in all such cases. After a thorough treatment with vaccines and continued negative microscopic findings, and especially after the lapse of sufficient time, these patients may be pronounced cured. The diagnosis of cure must rest upon an active immunization and clinical behavior.

### DERMATOLOGY AND RADIO-THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Bullding, Oklahoma City

Thallium Acetate in the Treatment of Fungus Infections. Grshebin and Salzman. (Derm. Zeitschr., March, 1928, p. 105.)

The author studied the procedure of thallium epilation in Buschke's clinic, and his instructions were followed closely. The report was made from 93 cases, favus 31, trichophytia 58, and microsporia 4. Of this number 3 failed to epilate perfectly and only 6 were uncured at the end of six months. Investigation of kidney function was made before and during the treatment and only once did albumen appear. Blood studies were made in 33 cases with the result that no changes were observed. Mild toxic symptoms were seen in 25 cases, 20 had joint pains, 2 pains in the stomach, 1 had deafness, lacrymation and conjunctivitis, and 2 had derititis on the scalp. The poorly nourished children seemed to be more subject to these untoward symptoms and the

symptoms were more marked in warm weather when the children were allowed to run about in the open. During the holidays when the clinic was closed a number of cases were treated out-door of whom one died. Here it seemed that the mother's word had been taken for child's weight and that the thallium dosage had not been prepared with its usual exactness. The author concludes that in children epilation by thallium is in no way inferior to that by X-rays. The shorter duration of baldness with the former is fully counterbalanced by the fact that parasiticide treatment can be instituted without delay. In a few cases with irregular shaped heads thallium is thought to be superior, as even dosage of X-rays is not possible. This is also true in very young children and in many cases. Thallium is less time consuming than X-rays and far less expensive. Toxic symptoms may be avoided if strict precautions are followed and such as do occur are offset by the absence of permanent hair loss such as is occasionally noted in X-ray epilations.

Contribution to the Zoster Question. S. A. Glaubersohn and R. A. Willfand. (Derm. Wochen-

schr., March, 1928, No. 9, p. 300.) The association between Zoster and chickenpox has often been observed clinically, nevertheless the author considers that little experimental work has been done with a view of testing the possible relationship between these two diseases. They inoculated two babies with the contents of the zoster vesicle. One of the children developed a local vesicle ten days later, and after a further period of eight days a few scattered papules with rudimentary vesicle-formation. It is not assumed from this experiment that there is a definite connection between herpes zoster and chickenpox but confirm the previous findings of Lipschutz and others, namely, that zoster is an infectious disease which can be inoculated from one individual to another.

The Significance of the Blood Groups in Dermatology. Kloevekorn and Simon. (Derm. Zeitschr., June, 1927, p. 294.)

The figures which are not large enough to furnish a basis of much significance give a suggestion that the patients of Group I are easier to render Wassermann-negative than those in Group II. Studies of other diseases of internal origin such as dermititis herpetiformis, the eczemas, and some of the other inflammatory dermatoses are thought to follow blood groupings. The sug-gestion is also made that the peculiar herpetic manifestations on the skin during pregnancy depend upon the mother and foetus being of incompatible groups, as Schneidner has suggested in the cases of eclampsia.

Desensitization with X-rays in Eczema. Miescher,

—(Derm. Zeitschr., April, 1927, p. 89.)
This paper does not well lend itself to consideration due to its length and elaboration. The author found in a general way that the slight immediate lessening of the response to irritation of an eczematous area as the result of irradiation was soon followed by a return of the original condition. When the sound skin of eczema patients was irradiated it had no effect in raising their resistance to irritants. The author adduces clear evidence that irradiation often produces a permanent clearing of eczematous area, and the percentage of these good results was much higher

in those patients whose skin condition had lasted only weeks or months rather than in those which had lasted for years. The more acute the der-matoses the better the prognosis. Occupational cases gave far better results than those of an unknown etiology and localized cases responded much better than those which were wide spread. The cases in infants gave only intermediate results. The results from prophylactic treatment after disappearance of the eczema were only il-

Lupus Erythematosus, Especially the Acute Form. Ollendorf. (Derm. Zeitschr., April, 1927, page

In spite of the question of the tubercular origin of lupus erythematosus and its recent advocation, Ollendorf believes that the peculiar reaction of the skin depends on some constitutional condition which causes the reaction to different agents to be of similar type. She quotes illustrative cases and her conclusions, especially in the acute form are that a septic origin is probable. declines to accept the undoubted favorable effects of gold injections as evidence of a tubercular origin, as gold is a capillary poison, and the occasional occurrence of severe gold-dermititis, analogous to salvarsan-dermititis indicates an action on the vegetative nervous system.

Further Experiences with Gold Preparations in the Treatment of Lupus Erythematosus. E. Freund. Giorn. Ital. di Derm. e Sifilo, 1927, page 311.

The author, after calling attention to ten cases of lupus erythematosus treated by him with krysolgan in 1925 describes his results in sixteen other cases treated with the gold preparation. This treatment included the use of krysolgan, trifal, and aurophos, the author also used sulphoxylat 1 and neocrislo. In twenty-three cases in which the treatment was completed twelve were cured, five much improved, three slightly improved, and in three cases no result was seen. The hyperaemic type of the disease gave the best results, while the results obtained in the scaly cases showed this form less susceptible to the treatment. A slight albuminuria in one case and a slight maliase in one other case were the only ill effects noted from this group of treatment. The author was noncommital as to the individual merits of the various gold preparations. He also refers to a case of lupus vulgaris in which he obtained a very good result with pyotropin combined with aurophos and a cure obtained with arseno benzole in a case which was refractory to gold treatment. The work of Feldt was referred to by the author and attention was called to the use of the gold preparation in the treatment of recurrent fevers, streptococcal septicaemia, experimental syphilis in animals and multiple sclerosis.

Simple Remedies in Eczema. Hoffman. (Derm. Zeitschr. September, 1925, p. 54.)

After commenting against the cults of the new and an expression about the shot-gun prescriptions so beloved of the beginners and the nonspecialists, Hoffman recommends for acute eczema, and as a first application for chronic cases, a cream of equal parts of zinc oxide and pure olive oil, to which two to three percent boric acid can be added, and perhaps a little later one to two percent salicylic acid. Pure olive oil on cotton wool is suggested to be used in removing the cream before making a fresh application. In the later stages he uses a paint containing pix liquida 5.0 to 10.0 glycerine 10.0 to 20.0, spt. vini rect. ad 100.0, well filtered. This is useful also in psoriasis, and two percent salicylic acid may be added to prevent a tar folliculitis. X-rays are used according to Hoffman to excess in the treatment of eczema, often to the permanent damage of the skin. He cites the opinion of his assistants Schreus and Klein. He finally guards against relapses by after treatment, such as occasional paintings with tar paint or rubbing with weak salicylic ointments.

## TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

Tuberculous Salpingitis Simulating Ruptured Tubal Pregnancy. Report of a Case. J. A. M. A., Feb. 2, 1929. Karl A. Meyer and A. F. Lash.

An Italian woman, aged 26, entered the hospital, May 28, 1927, because of severe pain in the lower portion of the abdomen, bloody vaginal discharge and amenorrhea of one months duration. Six weeks before, following a beer party, she vomited once and experienced a severe and constant pain in the left lower quadrant of the abdomen. She was forced to go to bed for several days. Three weeks later there was a recurrence of the pain on the same side and was severe enough to warrant calling a physician. For the last ten years the patient had had each year a pleuritic pain in the chest, accompanied by cough, slight fever and a nasopharyngitis. Duration of the attacks was seven to ten days under the usual management of common colds. In 1909 she had had two attacks of lower abdominal pains, at six month intervals. A diagnosis of appendicitis was made during one of these attacks.

The menses began at age of twelve; had been irregular, occurring from every two to six months up to the age of fifteen, then every two months and then every six weeks.

Had been married since 1925 and had never been pregnant. At examination the temperature and pulse were normal. Tenderness and pain were present near the umbilical region, to the left. The corpus uteri was firm, smooth, up and fixed. Tenderness over bladder; the adnexa were fixed and there were no masses; but extreme tenderness was present in the left adnexa.

Laboratory findings not important.

Diagnosis of ruptured tubal pregnancy was made and patient was operated on May 29th.

From 300-350cc. of liquid blood with clotted blood adherent to the bladder was found in the pelvis. The peritoneal and pelvic cavity were filled with firm, fibrous adhesions. The tubes were nodular and bound down. A bilateral salpingectomy was done. The postoperative course was uneventful. A recent answer to a questionnaire tells of the patient being well and menstruating every month.

Microscopic examination showed a marked proliferation of the endosalpinx filling the entire lumen. The stroma and muscularis were infiltrated with tuberculous tissue consisting of giant, epitheloid and round cells. Cautery In Tuberculosis of the Tongue and Larynx. George H. B. Terry, Southern Medical Journal, Feb. 1929.

Nine cases of ulceration of the tongue are reported which were treated and cured by the electric cautery.

Practically all had been treated with nitrate

of silver or other medicaments.

Laryngeal tuberculosis is a frequent complication of pulmonary tuberculosis. One of the earliest signs is a hyperemia of the vocal cords. The usual pathological condition is general infiltration of the larynx, edema of the arytenoids, proliferation in the posterior commissure, a thickening of the epiglottis or even ulceration. The most frequent site of ulceration is the vocal cords or the epiglottis, altho it is not infrequent in the vocal bands or arytenoids. When the diagnosis is made the treatment should be begun, the most efficient of which is voice rest or electric cauterization. Any patient with pulmonary tuberculosis who has a tendency to hoarseness should be put on voice rest. If monthly exami-nation shows that the patient is not making satisfactory progress under voice rest, electric cauterization is done under local anesthesia from moistened cocain flakes applied two or three times to the area involved and preceded by a spray of four per cent. cocain to prevent gag-ging. The indirect method of illumination is ging. The indirect method of mumination is used, the cautery point placed cold on the area of ulceration and the current applied until the area is well seared. For the epiglottis and arytenoids a pointed electrode is frequently used and punctures are made into the swollen area in addition to surface cauterization. After treatment consists of nothing at all except occasionally an analgesic is given for the pain. The interval between cauterizations is a month, as a rule, but there are some exceptions.

Not the least of the advantages of the cautery treatment is that it interferes but little with the bed rest so important in the treatment of the pulmonary disease.

Diabetis and Tuberculosis. R. D. Tompkins, Southern Medical Journal, Feb. 1929.

Fourteen cases are reported in which diabetis mellitus and tuberculosis occurred in connection.

By means of insulin and diet the diabetis was controlled, but the tuberculosis showed progressive advancement in all but one case. In this instance in which a diagnosis of pulmonary tuberculosis, moderately advanced "A" was made, the patient gained weight and the x-ray showed some clearing, but the diabetis was more difficult to control.

The results of this series of cases suggests that pulmonary tuberculosis progresses more rapidly in the presence of diabetis.

Tuberculosis and Genius. "Kings it makes Gods, and meaner creatures kings."—Shakespeare.

In many individuals suffering from tuberculosis there seems to be a strange psychological flare, a phenomenon not fully accounted for, not of established scientific lineage, yet quite evident to the student of clinical tuberculosis. In keeping with the above quotation the spes phthisica not only has the power to make meaner creatures kings, but its stimulating influence upon genius, often spurs the creative mind to the utmost expression of the attributes of God. Everyone who deals with tuberculosis patients in institutions

knows how patiently they bear their lengthening burdens; how courageous they are, often, in the face of insurmountable obstacles; how optimistic they may be when life is literally being cut down by the inevitable sweep of the Great Reaper. Precious paradox, this, with death so near and life so abundant.

Charles Dickens displayed an uncanny appreciation of the psychological state which often accompanies tuberculosis when he wrote as follows:

"There is a dread disease which so prepares its victim, as it were, for death; which so refines it of its grosser aspect, and throws around familiar looks unearthly indications of the coming change—a dread disease, in which the struggle between soul and body is so gradual, quiet, and solemn, and the result so sure, that day by day, and grain by grain, the mortal part wastes and withers away, so that the spirit grows light and sanguine with its lightening load, and, feeling immortality at hand, deems it but a new term of mortal life—a disease in which death takes the glow and hue of life, and life the gaunt and grisly form of death—a disease which medicine never cured, wealth warded off, or poverty could boast exemption from—which sometimes moves in giant strides, and sometimes at a tardy pace, but, slow or quick, is ever sure and certain."

Of greater interest in the subtle power of this intangible fraction of the tubercle bacillus which make Gods of those who might otherwise be only kings in the realm of thought. Could anything be more miraculous than the flare of genius from the latent spark in the chilled form of Francis Thompson as he lay deserted on a dump heap near Convent Garden. A girl of the streets gave him succor and saved his body from the Potters' Field that it might later rest at Kensal Green under his own inscription, "Look for me in the nurseries of Heaven." Perhaps this "Angel of the Streets" was acting under the urge of spes phthisica when she was prompted to share her pittance with this then undiscovered genius.

From time to time this column will contain brief biographic sketches of those who have come under the influence of this strange power.

—L. J. M.

Intrapleural Pressures in Massive Collapse of the Lung: Chas. C. Habliston, M.D. American Jour. of the Medical Sciences, December, 1928.

Massive collapse of the lung has been reported as occurring:

- 1. In obstruction of the bronchus from within: Foreign body, intrabronchial tumor, mucus plugs, excessive secretions.
- 2. In obstruction of the bronchus from without: Pressure of aneurysm, mediastinum tumor, pericardial effusion.
- 3. In obstruction of the bronchus by chronic inflammatory disease: tuberculosis.
- 4. As a complication of trauma, or operative procedures.
- 5. As a complication of severe infections grossly involving the nervous system, reported in post-diphtheritic paralysis, acute meningitis and acute poliomyelitis.

Physical findings are:

1. Retraction and immobility of the chest wall of the affected side,

- 2. A high fixed diaphragm on the affected side.
- 3. Dullness on percussion over atelectatic lung.
- 4. Breath sounds either tubercular or absent.
- 5. Marked cardiac displacement toward the affected side.
- 6. Roentgen ray findings of marked opacity of the lung, a high diaphragm and typical cardiac displacement.

The author in his experience with artificial pneumothorax has considered an intrapleural negative pressure varying with respiration between 40 and 70 mm, of water as being the average normal. In this condition collapse occurs without the entrance of air into the pleura. The suction or negative pressure normally existing in the pleural is markedly increased and displacement of the heart, mediastinum and diaphragm results, the structures being drawn toward the affected side. Cases have been reported in the literature in which the intrapleural suction varied with respiration between 100 and 160 mm. of water to as high as 337 and 432 mm. of water. As a result cyanosis and dyspnea often develop, probably because of extreme cardiac displacement and acute overdistention or emphysema of the contralateral lung. A vicious circle is now established—bronchial obstruction, absorption of alveolar air, collapse of the lung tissue, marked increase in intrapleural negative pressure which in turn can only draw the obstructing medium more firmly and deeply into the bronchus. It was on this basis that Wilson suggested that partial pneumothorax, by lessening this negative pressure, or converting it into a positive one, might be of assistance in forcing out the obstructing agent. Several cases have been reported and immediate symptomatic relief obtained by this means. The author reports a case in which the disappearance of a cyanosis and dyspnea immediately followed the injection of 600 cc. of air into the pleura.

Artificial Pneumothorax After Fourteen Years: W. B. Kendall and C. B. Ross, Am Rev. of Tb., December, 1928 ((From the Muskoka Hospital for Consumptives, Gravenhurst, Ontario).

The years 1923-1927, inclusive, comprise the period of the first group which contains 148 patients who received compression and 88 controls upon whom reports are available.

Of those who received compression 66.9 per cent are improved, well or working, including 22.2 per cent who are working, while of the controls only 31.8 per cent are improved, well or working, including only 6.8 per cent who are actually working.

The intermediate or 5-year group, made up of patients who commenced treatment in the years 1918 to 1927, inclusive, records 164 cases. Of those who received compression 44.9 per cent are improved, well or working at the end of 5 years, including 44.7 per cent who are working, while among those who were unable to receive compression only 21.3 per cent are improved, well or working, including only 9.1 per cent who are working. At the end of ten years, of those receiving compression 32.7 per cent are still improved, well or working, including 20.9 per cent who are working while of those who did not receive successful compression, partial or complete, only 5.6 per cent are improved, well or working. The death records show that at the end of ten

years of those receiving treatment 65.7 per cent are dead, while of those who were unable to re-

ceive it 92.5 per cent are dead.

When it is said that the disease treated by artificial pneumothorax should be unilateral in its manifestations, this is speaking relatively. There are few cases of extensive involvement of one lung in which possibly tuberculous changes of some extent, cannot be demonstrated in the other, radiographically at least 55.5 per cent of the patients reported in this series as receiving treatment have shown definite parenchymatous lesions in the other lung extensive enough to be found in most cases by physical signs. Some of the best permanent results have been obtained in patients who have had definite clinical evidence of a lesion in the contralateral lung. Retrogression of a focus of disease in the noncompressed lung after the successful induction of artificial pneumothorax has been noticed so frequently that interesting conjectures arise as to the cause. The bolstering up of general immunity, by throwing out of com-mission a lung which, while in active function, is the source of everwhelming toxemia, and the production of hyperemia in the noncompressed lung may be two of the factors which play a part in this amelioration.

### THYROID GLAND IN INFECTIONS

All the data presented by W. T. Cole and N. A. Womack, St. Louis (Journal A. M. A., April 21, 1928), point strongly to the fact that the thyroid gland takes an active part in the mechanisms com-

bating diseases of the body in general. Especially does this seem true in acute infections and fevers. Since the iodine content of the gland is reduced so markedly during acute infectious processes experimentally, it seems logical to assume, that the administration of iodine to patients with infectious processes, especially of the acute type, might be beneficial.



See Description, Journal A. M. A. Volume XLVII, Page 1488.

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# DR. A. L. SKOOG

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NUMBER 4

### MALTA FEVER

A REPORT OF THREE CASES
BY
DRS. D. O. SMITH AND SAMUEL GOODMAN
TULSA

This disease, known probably for a number of centuries, was first accurately described by Marston, himself a sufferer of the disease in 1863. Bruce in 1886 by cultivation from spleen pulp was able to isolate and demonstrate the causative agent by reproducing the disease in monkeys. He described it as a small organism or micrococcus which was later named micrococcus melitensis. After isolation of the organism the source of infection in man remained unknown until the British government appointed a commission under the charge of Sir D. Bruce who, working from 1904 to 1906 on the Island of Malta, definitely established the epidemiological factor, namely ingested milk of infected Maltese goats. This commission reported also that the disease was inoculable into cattle, monkeys, horses and dogs. This disease endemic on the Island of Malta has been found to occur commonly along the shores of the Mediterreanean and in the tropics. The first case in the United States was reported by M. C. Craig<sup>3</sup> of the U. S. army in 1905. The patient was a nurse in Washington who had contracted the disease from nursing infected soldiers who had developed the disease in the Philippines. Ferenbaugh' of the medical corps U. S. army reported five cases occurring in Texas in 1911. All of these cases had worked with goats and drunk goats' milk. Following this report Ferenbaugh and Gentry were detailed by the Surgeon General to make an investigation of the disease in Texas. Their investigation showed that Malta fever probably had existed there for about twenty-five years. Yount and Looney reported five cases in 1912 occurring near Wagoner, Arizona. Yount' in 1913 reported five other cases found at Wilcox, Arizona. The first real outbreak, however, occurred at Phoenix, Arizona, in 1922, when more than thirty cases were positive-

ly diagnosed as Malta fever. These patients had been drinking goats' milk and were not identified with the goat-raising indus-The incidence of this outbreak is of considerable interest. The disease began the latter part of May, 1922, and was unrecognized as Malta fever until several months had elapsed, during which time the following diagnosis had been made: typhoid, rheumatic fever, malaria, septicemia and influenza. Thirty-five cases were found by September, a number of these being typical enough clinically to make a diagnosis without serological tests. epidemic was traced to one dairy. The diagnosis was made difficult due to the fact that most of the patients were either children or tuberculars. Since then numerous cases have been reported from various sections of the country. The relationship of B. abortus and micrococcus melitensis was for a number of years unsuspected. In 1917 and 1918 Evans<sup>10</sup> after an exhaustive bacteriological study came to the conclusion that the organisms were either the same or closely related to each other. She further stated that the organism causing Malta fever was a rod and should be called a bacterium melitensis. In 1911 Shroeder" and Cotton, Smith and Fabyean<sup>12</sup> working independently established the fact that B. abortus was discharged in the milk in the San Francisco bay region. It may be stated generally that raw milk in this country, with the widespread abortion disease in cattle, regularly contains this organism. As a result of this fact considerable experimentation and investigation has been carried on to determine the danger of B. abortus infection in humans. Burnett concludes from a comparative study of both organisms that morphologically or serologically no observer can make any certain diagnosis, the only apparent difference being the greater susceptibility of the monkey to B. melitensis. This view has been corroborated by Auche<sup>14</sup>, however, Evans states that there is a slight but distinct difference between the two organisms, which can be detected by agglutinin absorption tests. It may be of passing interest to note that among

laboratory workers infection with B. abortus is practically unknown, while accidental infection with B. melitensis is of frequent occurrence. The president of the American Bacteriological Society is reported as being ill at this time from laboratory infection.

# PATHOGENSIS OF B. MELITENSIS AND B. ABORTUS IN GOATS AND CATTLE.

The infection in goats is in the udder where it produces a mild mastitis. It has been estimated that as many as 25,000,000 organisms of B. melitensis have been found in a cubic centimeter of the milk. The infection in cattle produces abortion mainly. The number of B. abortus has been estimated in the milk of infected cattle as about 10,000 per cubic centimeter. Experimental inoculation of B. melitensis into cattle does not produce abortion.

Up to five years ago all cases of Malta fever in this country were thought to be the same as those found in the Mediterranean countries. Keefer reported first a case which he concluded was due to the B. abortus of Bang. Evans' cites some twenty cases in widely separated sections of the country more or less authenticated, of the human infection with B. abortus. We wish to add three cases reported in this paper as due probably to the B. abortus from ingestion of raw cows' milk. The New York Department of Health reported that from January, 1926, to March, 1928, twentyfour cases of Malta fever in all probability caused by the B. abortus occurred in New York state.

The Iowa State Laboratories<sup>15</sup> in a recent report showed that during a three months' period to November, 1927, the routine agglutination test for Malta fever was done on sera sent to them for Widal tests. The results showed forty-six positive Widals from forty-one cases and fifty-six positive agglutinations of Malta fever from thirty-one cases. They recommend a routine examination for Malta fever on all blood specimens sent to state or municipal laboratories for Widal tests. They advise further that a diagnosis be made only if laboratory and clinical findings coincide.

It follows therefore that the diagnosis, certainly of sporadic cases and in the majority of endemic cases, must be made through the utilization of the laboratory; namely by agglutination and agglutinin absorption tests.

Symptoms of undulant fever, while not particularly characteristic, are definitely

pronounced. Most observers state that the incubation period varies from eight to fifteen days. The onset may be either gradual or acute, the characteristic features being a definite chill or chilly sensation, pyrexia, pronounced headache, insomnia, general muscular pains, neuritis, anorexia and depression. During the course of the disease chilly sensations may occur daily especially in the afternoons. The fever in a typical case occurs in variable periods from several days to several weeks and assumes a step-like course, reaching as high as 105 degrees. It then falls gradually and is remittent for two to four days. Following this a pyrexial relapse occurs and the same process is repeated indefinitely, the alternating recrudescence and defervescence lasting from two months to over a year. During the periods of fever, the respiration and pulse rate are increased, the latter being more marked. The patient during the fever periods appears quite ill; this being in marked contrast to the general appearance and feeling of well being during the period of apyrexia. The striking similarity to malaria in this respect is self-evident. Perspiration, at times of a profuse character commonly accompanies the defervescence of the fever. Cephalodynia and insomnia are features of the disease that are almost constant. Case number two in our series typified the distressing insomnia. General muscular pains and arthralgia are other constant symptoms. Arthritis affecting the large joints with swelling and no redness is at times characteristic. Depression almost amounting to a melancholia is frequently noted. Anorexia and a furred tongue are present usually. Either constipation or diarrhea may be present during the course of the disease. Among the physical findings enlargement of the spleen is almost always present. The enlargement is generally of a moderate degree. It is interesting to note that in case number three the spleen was palpable and slightly tender during the periods of pyrexia and not palpable during the periods of apyrexia. This is suggestive that the peculiar course of the disease depends upon massive dosage of the organisms occuring in the blood stream. The blood picture generally shows a normal leucocyte count, although a leukopenia is frequently encountered. There is a reduction in the neutrophiles and an increase in the lymphocytes up to 80 per cent. The erythrocytes and hemoglobin are definitely reduced, especially after the disease has existed for some time.

#### CLASSIFICATION

Castellani classifies the disease into four varieties. First, typical. The onset is accompanied by chills, headache, malaise, anorexia, gastric irritation, insomnia, muscular pains and general depression. The temperature increases each day for four or five days. The spleen is palpable and tender, the tongue coated dorsally, the edges red. All the symptoms grow worse with the rise in temperature. Either constipation or diarrhea may occur, the temperature ranging from 103 to 105 degrees. There may be a cough and some bronchial rales. This continues for ten to fourteen days and then the symptoms gradually subside and by another two weeks reach about normal, again to relapse after three to four days.

Second, the *malignant type*, characterized by a severe and sudden onset. All symptoms are intensified. There may be a basilar pneumonia, a typhoidal-like condition follows and the patient dies from cardiac failure.

Third, *intermittent type*, gradual in its onset, mild in its course.

Fourth, ambulatory type. The patient may show no symptoms, or he may complain of weakness and feel feverish at times.

#### DIAGNOSIS

Craig<sup>3</sup> in reporting the first case of Malta fever in the United States stated that a careful study by means of the Widal test and the agglutination reaction with micrococcus melitensis of many cases of obscure continued fever would show that Malta fever is not a rare disease in the United States and that many of the so-called cases of atypical typhoid are in reality those of Malta fever.

Rarely is the diagnosis of Malta fever made during its early course except where the disease is endemic. Its similarity to diseases such as malaria, rheumatic fever, typhoid, septicemia and tuberculosis is so striking that seldom is it thought of or suspected. Recently, Francis and Evansthave shown that not only does tularemia run a similar course but also that cross agglutination between B. tularense and B. melitensis occurs frequently.

#### SUSPECTED CASE

A study of this disease has led us to believe that some cases either febrile or afebrile have been undiagnosed or wrongly

so. The following case history is probably of the latter class. Patient, a woman, 30 years old, weight 120 pounds, married seven years, no pregnancies. One year ago weight 160 pounds. Went on a starvation diet, lost 40 pounds in a short time. She had the usual diseases of childhood, no other illness. She has lived in Tampico, Mexico, for about two years. In November, 1926, she began with daily temperatures, a few chills and very little prostration. She came to Dallas where she was treated for malaria for about two weeks. Intravenous and intramuscular quinine was used heroically. The family moved to Tulsa, lived in a hotel, taking their meals outside. She came to the doctor's office November 30, 1926; at that time her temperature was 104.2 degrees, pulse 116, W.B.C. 5800. The physical findings were negative excepting an enlarged spleen. The lower border could be palpated at the costal margin. Tenderness was slight. She complained of pains in the hips, legs and intercostal regions. There were night sweats when the fever was high. No plasmodia were found, the blood culture was negative. Widal test for typhoid and the peratyphoids were negative in all dilutions. The urine was negative. Subsequent tests confirmed these findings. She was given 15 grains quinine dihydrochloride intramuscularly, which was repeated daily for six days. She went to the hospital December 7. She was given quinine to her toleration, a course of neosalvarsan was used, sodium cacodylate and also one per cent mercurochrome intravenously were tried at different times. Nothing affected the temperature. Prostration increased, anaemia became more marked. She died January 4, 1927, having developed bronchial pneumonia a few days previously. The cause of death was given as bronchial pneumonia, terminal to tropical malaria. There was a mental reservation regarding the latter. The graphic chart is from the hospital record.

#### TREATMENT

In view of the prolonged disability produced by the disease and the resulting economic loss, it appears strange that more time has not been spent in an attempt to perfect a cure. Text books sum up the treatment by stating that so far all measures have been exceedingly disappointing, and no specific measure has been found to combat this disease. Various anti-melitensis sera and vaccines have been tried without success, Treatment therefore, has con-

sisted solely of ameliorating symptoms.

The nature and behavior of the disease suggested to one of us the possible beneficial effect that immune serum may have on the disease. As a result of an investigation, a nurse in a local hospital was found, who had a rather severe case of Malta fever while she was in Arizona about one and one-half years ago. She volunteered to give some blood for the experiment. Twenty cubic centimeters of serum were obtained and injected intramuscularly to patient number three. The striking results obtained are to be seen in the accompanying chart. While it is true that this case was apparently of the mild type, it is, nevertheless, suggestive that the small amount of serum given had a definite therapeutic effect. The use of immune serum given in large doses and repeated frequently in the severer cases of Malta fever might be of invaluable aid in solving the therapeutic enigma attached to this disease.

The issue of treatment must, at the present time, therefore, confine itself largely to prophylaxsis. In as much as it is known definitely that the infection is transmitted by ingestion of goat milk, it is imperative that the drinking of goat milk, unless sterilized, should be discontinued. This is particularly true in localities where the disease is known to exist. Sufficient evidence has been accumulated to show that undulant fever has been traced directly to the ingestion of raw cows milk. This problem, which obviously is of vast importance is much more intricate and difficult of a solution. Septic abortion in cattle is widespread throughout the United States. The New York State Board has estimated that at least thirty per cent of the cattle of New York state are afflicted with this disease. While facts regarding its prevalence are not available in Oklahoma, it is known to exist extensively in Tulsa county.

Pasteurization of all milk, except in instances where strict supervision of the milk supply and serum reactions for B. abortus infection in cattle is carried out, would solve the problem. As pointed out previously in this paper certification of milk is of no avail in the prevention of the disease.

Lastly, some importance must be attached to the possibility of human carriers. It has been proved that the organisms of Malta fever are present in the urine of patients having the disease. Contamination from this source must be guarded against.

Case No. 1. Mrs. A. W., age 24, came to the hospital April 27, 1927, from a neighboring city. In January of that year she became ill. The symptoms were described as general weakness. Early in February she had a fever for ten to twelve days. This was followed by a period of no fever and apparent recovery. The temperature returned in a short time. There were a few chills. This febrile period was longer and had more marked symptoms. The disease was thought to be either typhoid or malaria. The temperature returned to normal, but pain and tenderness persisted in the lower abdomen. An appendectomy was done. Convalesence from the operation gave hopes for a complete recovery. However, the symptoms returned for a short period. She was treated for the usual diseases without a change in the course of the disease. In the next recurrence of symptoms she was seen by one of us in her home with her physician, who had not attended her in her early sickness. The physical examination was negative, a blood count was taken as well as a catheterized urine specimen. The urine was negative, the W.B.C. 6200. No diagnosis was made. She came to the hospital in Tulsa April 27. The temperature was 103, pulse 124, respiration 24, W.B.C. was 8500. There was profuse sweating and nausea and vomiting the following evening. Restlessness necessitated codeine for sleep at night. A catheterized urine specimen was entirely negative, even to culture. She complained of pains in the right abdomen, and in the pelvis. Physical examination showed the head, neck, teeth, throat, thyroid, lungs and heart free from any pathological findings. The abdomen had a scar from a recent appendectomy. The anterior border of the spleen was in the anterior axillary line. Some tenderness was elicited over the right kidney region. No pathology was found in the pelvis. Blood cultures on the usual media were negative after three days. No plasmodia were demonstrable. She was seen by several medical men, a few surgeons, and the urinary tract was checked by a urologist and the roentgenologist. The Widal tests were negative. Stool cultures for the typhoid group gave negative results. There was no cough and consequently no sputum. The chest was examined repeatedly for any signs of a lesion. None could be found. The second day there was a chill. The temperature mounting to 104.6. Sweating was extreme. The next three days showed no particular change. At the end of a week the temperature was normal, or below. All the symptoms suggested a recovery. The apyrexia was followed by a second rise, but not so high, which in turn was succeeded by another decline. The clinical appearance of the patient improved strikingly with the decline of the temperature and pulse. Treatment was symptomatic as a diagnosis was not made. The undulating type of fever led to a search for some unusual disease that would explain the history. Serum was sent to the Chicago laboratories with a request for Malta fever tests. The report was positive.

The family was informed of the usual long course of the disease. They felt unable to meet the expense of hospitalization and left May 21. Some weeks later she was seen by a specialist in tuberculosis, who made a diagnosis of pulmonary T. B. The patient was removed to a southern state. No definite report could be obtained, but we were told that she died sometime in the following late fall.

Case No. 2. Mr. M., an attorney 50 years old, was seen by one of us December 7, 1927. He complained of a sore throat, an annoying cough and general aches and pains. There was a slight fever, the throat was red, the membranes red, and there were mucous rales about the hilus of each lung. The W.B.C. was 13,000. A diagnosis of influenza was made as we were having an epidemic of influenza. The temperature became normal in two days and he said he would leave for New York the following day.

The other of us was called December 16. At that time he was complaining of a cold and cough, weakness and exhaustion, frontal headaches mostly in the morning. Physical examinations were repeatedly negative excepting for fine crackles in the lower lobe posteriorly, and the left tonsil was septic.

He was under observation until January 6, 1928, when he left for Hot Springs, Arkansas.

During this time the temperature was of an irregular type ranging from 97 to 102. The blood picture was normal. A blood culture was negative. The urine was negative until the last ten days when there was a trace of albumen. There was some loss of weight. The impression was that there was a focal infection, apparently from the septic tonsil with the possibility of a septicemia.

The stay at Hot Springs was short. He

entered a Kansas City hospital, where he was under the care of one of the city's ablest internists.

February 15, the following letter was received from the physician:

"Replying to your letter of the 10th, will say that Mr. M. has been a patient under our observation at St. Lukes Hospital for approximately a month. He has had a continuous low type of temperature with practically negative findings. His widal test has been repeatedly negative, blood cultures negative, leucocyte count between 5,500 and 7,500 only once being as high as 9,000 and we have spent hours searching for malarial plasmodium, but none were found. In fact, we gave him quinine for two or three days which had no effect whatever. The X-ray pictures of his chest were negative and the tuberculin test was also negative. On admission he had what seemed to be fairly typical rose spots and stool examinations showed positive for occult blood every day for the first ten or twelve days, since then it has been nega-His spleen could not be felt. His maximum temperature the first eight or ten days was 102 to 103, but for three days the latter part of last week the maximum temperature was 99.8. For the past three days the temperature has ranged from 99 to 100.4. His pulse is from 90 to 120. He is feeling very much better, less nervous and says he feels practically normal. This is about all the information I can give you at this time."

Later, the following communication was received:

"A couple of weeks ago I wrote you that our diagnosis on Mr. M. was typhoid fever. On account of the long duration and repeated negative Widals, and also the negative tests with the para typhoid A and B, he seemed to be at least an atypical case of typhoid, yet he at no time had a leucocyte count above 9,000, some definite spots on his abdomen and chest, and continuous temperature.

"I had in mind all the time the possibility of something else and finally became convinced if it was not typhoid, it was something I had never seen before. Thinking of the possibility of a Malta fever, we obtained some antigen down town and found the agglutination positive up to one to 500. Tests were then made with the serum of seven other patients and they all came out negative. We then sent some of Mr. M's serum to the United States Hy-

gienic Laboratory in Washington and received a telegram yesterday that the agglutination test for Malta fever was positive in one to three hundred and fifty. Rare as this disease seems to be, from the clinical course and from the agglutination tests, the diagnosis of Malta fever seems justifiable.

"He is feeling very much better and sits up a little every day. His highest temperature yesterday was 99.3."

During his stay in Kansas City there was almost constant sweating, frequent urination with some retention at times. Nervousness and insomnia were distressing. To secure sleep he was given sodium luminol gr. IV medinal gr. X, paraldehyde drachms VI and morphine sulph gr. 1-2 in one night. He slept four hours. The next night the same medication was given except a grain of morphine was used.

The demand for sleep seemed greater than the danger from the drugs. He was put on a diet of cream soups, cooked cereals, fruit juices and fed every one and a half hours; 2500 calories was used at first, which was raised to 3500. Loss of weight was small.

About the first of March he developed some mental confusion, and the patient feared he was losing his mind.

He returned to Tulsa March 9, and is under the care of the one who first saw him. The trip home, the meeting of some friends, and business worries may have been incidental to an exascerbation of symptoms and added mental confusions. Fearing that the hypnotics might be a factor in the neurosis a gradual reduction of the drugs was begun. Insomnia and confusion were troublesome until the temperature returned to near normal a month ago. Improvement has been gradual since that time. At present the mentality is clear, he sleeps about seven hours out of the twentyfour, walks up and down stairs, walks some out of doors, rides in the car, takes daily sun baths, has a good appetite and has regained eleven of the thirteen pounds loss of weight. He is getting from 15 to 40 grains of bromides and about 6 drachms of paraldehyde per day. Faster reduction results in nervous "blow ups."

The heart rate remains high, varying from 100 to 140. The blood pressure a month ago was 110-78. It is now 124-88. The sounds are good, the rate regular, and there is no dyspnoea from his limited exercise.

Case No. 3. T. F. S., age 57, a writer of newspaper editorials was seen on February 18, 1928. Except for occasional colds, malaria and jaundice twenty years ago, he enjoyed good health up to about February 8, 1928. At that time he began to feel tired, was slightly nauseated, and unable to sleep. He had some headache, and chilly sensations over the body, these occurring frequently during the subsequent course of the disease. He knew he had a high fever, but did not take his temperature. These symptoms were present for the following ten days, during which time he worked a few hours each day. On the sixteenth he decided to go to bed, thinking he would be up in a few days. He complained further of aching in the joints, loss of appetite and sweating. The symptoms continued, the temperature ranging from 98.8 to 102.4 until March 12, 1928. During the next three days his temperature was normal, the appetite was improved and the nausea, sweating and aching had practically disappeared. The symptoms then recurred, but were of a milder degree and the temperature range was lower until March 26, when he was given twenty cubic centimeters of immune serum intramuscularly, in the morning. That afternoon his temperature rose to 102.8; the following day the highest was 100. Since then up to the present date he has remained free from fever

Examination when first seen revealed that the patient did not appear very ill; the head with the exception of a thickly coated tongue and a moderate degree of gingivitis, was negative. Heart and lungs were negative. The abdomen was slightly distended and tympanitic, no tenderness. The liver was not palpable. The spleen was palpable and tender. It extended well below the costal margin on deep inspiration. The kidneys were not palpable. The urine was negative. W.B.C. 6500; neutrophiles 56; mononuclears 44; hemaglobin 80; R.B.C. 4,500,000. A Widal for typhoid, para A and B was negative. A blood culture was negative also. On February 28, 1928, ten cubic centimeters of the patient's serum was sent to United States Public Health Department at Washington. The report showed a positive agglutination of both B. melitensis and B. abortus in a dilution of 1:640. Later, Dr. Nelson, bacteriologist at St. John's Hospital, obtained an agglutination with the same serum in a dilution of 1:640 with a mixture of 10 strains of B. abortus. The clue as a pos-

and symptoms.

sible Malta fever in this case was obtained from the somewhat like behavior of case number two. Attempts to grow the organism from the blood and urine failed.

The patient never drank goat's milk. He was in the habit of drinking one-half to a pint of raw cow's milk daily, never ate cheese and used butter in small quantities. This patient and case number two took milk from the same dairy. The dairyman stated that he had no abortion among his herd. An investigation showed that two years ago he had some goats on the farm. The possibility of infection in the cattle from this source may be enlightening. We are attempting in conjunction with the city health department to further determine the probabilites involved.

#### MORTALITY

The mortality rate is low, averaging about two to four per cent in the epidemics that have been studied.

#### **PATHOLOGY**

The pathology can be summarized in the fact that the disease is a bacteriemia. The toxins may affect the organs differently, varying with the severity, whether acute or chronic, short or protracted. The low death rate makes autopsy material scarce. There is a degenerative action upon the red cells, and the phagocytic action of the white cells is lessened. In acute cases the spleen is enlarged, soft and dark, weighing about 200 grams. In chronic cases its weight may exceed a kilogram. There is a congestion of the kidneys affecting the glomeruli especially. There may be ulceration of the intestines. There may be congestion and increase of lymphoid tissue. The mesenteric glands when enlarged will give positive cultures of the bacteria. No findings are constant.

#### SEQUELS AND COMPLICATIONS

The disease may be followed by neurasthenia and despondency. Myocarditis of varying degrees may result. Not a few have become narcotic addicts from taking sedatives, from the arthralgia and neuritis over a long period. The use of hypnotics for pain and insomnia has led to trouble. Muscular atrophy, asthenia, neuritis, impaired memory are listed among the results. Complications include orchitis, probably the most common, bronchitis, pneumonia and myocarditis. Diarrhea, vomiting and very high fever may have dire results, ulcers may occur in the gut track

with hemorrhages, making a diagnosis of typhoid seem logical.

#### COMMENT

- 1. Malta fever was recognized but not completely described over two thousand years ago. At first it was thought to be confined about the Mediterranean countries, the tropics and the Southwestern United States. Recent evidence shows that the disease is widely distributed over the other states.
- 2. It has been proven that the goat is the host of the B. melitensis and the disease is transmitted through the ingestion of goats' milk. Cows are hosts to the B. abortus. The organisms are found in the milk of infected cows, although fewer in number than its allied group found in the goat. Most workers believe that the B. abortus may cause human infection, but there is some controversy regarding this claim. Apparently our cases belong to the B. abortus group.
- 3. Diagnosis is based finally upon agglutination, and agglutinin absorption tests. The clinical course not being definitely characteristic may similate either septicemia, tuberculosis, typhoid, malaria, neuritis, rheumatic fever or tularemia.
- 4. The treatment is largely symptomatic, no drug seems to affect the clinical course of the disease. The results obtained by immune serum in one of our cases warrants no conclusions, but deserves further trial.
- 5. We believe that Malta fever in Oklahoma is not a rare disease, and that agglutination tests on continued or intermittent fever cases, will reveal many positive cases.
- 6. So far as we know no other cases have been reported in Oklahoma.

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NOTE—Two other cases have been found since this paper was prepared.

# THE EVOLUTION OF THE PSYCHONEUROSES

### N. R. SMITH, A.M., M.S., DR. P. H., M.D. TULSA

The object of this paper is to stimulate a more critical scrutiny of that large group of patients that consult doctors for nervous complaints. The majority of regular medical practitioners by reason of their education and training think and act largely on the basis of disease in a physical or organic sense. The patient's ideas about his status seldom get a hearing and usually exert little or no influence in the diagnosis and treatment. It follows quite logically that often it is the disease and not the patient that is under treatment. Since the apparent disease may have no existence except in the patient's ideas about the matter the results are frequently unsatisfactory.

Where the nervous or mental element is obvious the patient is usually told three things, either singly or in combination. These are: "You are a case of nerves"; "You only imagine you are sick"; "Go home and forget it". These phrases are not original with me. They are put down quite verbatim from conversations with patients, and in a majority of instances they were followed by: "I guess I know when I'm sick; I've got a pain and it is not imaginary either." These are the patients that practitioners tell me clutter up various waiting rooms in more or less rapid succession, and finally or in between their medical shopping excursions have paid most of their ready cash to the chiropractor. They compose a large proportion of the clientele of all irregulars and it is not to our credit that this should be so. Medical men must realize that their ministrations should often include mind as well as body. Sound therapeutic measures for the

psychoneuroses rests on a knowledge of the etiological factors and an understanding of, if I may use the vernacular, "How do they get that way?"

Life is a perpetual struggle. This holds for all forms from the lowest unicellular organisms to man, the most complex of all. Since perfect control of environment is not possible life must either wreck itself against the unfavorable factors or submit itself in the least harmful fashion. This latter alternative process is adaptation and is universally in operation. Adaptation is accomplished by unitary action of the whole organism. This can be brought about in the higher forms of life only by some coordinating mechanism that can bring the various organs and tissues into an harmonious action. This is the primary function of the nervous system. By nervous system I include the brain, spinal cord, the sensori-motor and sympathetic-autonomic structures, and the endocrine glands.

The singleness of purpose required of any given organism for successful adaptation is more easily acquired as we go downward in the scale of life. This naturally results from the simplicity of requirements on the one hand and lack of complexity in the coordinating and coordinated structures on the other. Trouble is more likely to occur in the higher forms, and reaches its optimum prospects in man because he stands at the pinnacle both in things necessary for his complete happiness and in the elaborateness of the machinery that must be put into motion to acquire them. A modern wheat combine is more liable to functional derangement than a sickle.

A considerable part of adaptation activities in animal life and during the early years of human life are instinctive and does not require conscious control. That there is conscious evaluation of the elements that best satisfy the organisms fundamental needs is obvious from the food and housing habits of animals and by the lusty vocal protests of infants and young children. As a result conduct and affective emotional types become established. The thing which we call personality gradually evolves and becomes relatively fixed. One prominent writer thinks that we become largely a creature of reflex action by the time adult life is attained. We certainly do many things in what amounts to a reflex manner. Take the matter of nutrition as an example. A visceral sensory impulse which

we readily interpret as hunger causes us to pause quite rhythmically in either work or play to satisfy it by eating. The whole process is ordinarily one of pleasure and in the majority of individuals requires little conscious direction. Consider the vast difference in the emotional affect between a man whose efforts have placed him far beyond the possibility of care as to where his next meal is coming from and the individual out of a job who remarked, upon hearing the noon whistle: "For most folks that means dinner, for me it is only twelve o'clock." Suppose now that the care-free individual becomes afflicted with some metabolic disease that requires some hitherto undreamed-of restrictions on his dietary habits. Let it be diabetes. He must now exercise constant volitional control within a relatively narrow range of foodstuffs in contrast to his previous free choice of all that the market afforded. Here is where his reaction pattern will determine his action and attitude. Some will gladly lend their cooperation; others will say that they would rather be dead than to deny themselves this or that favored food, and in proof of their sincerity and depth of their statement proceed to eat themselves to death. With appropriate variations this food story holds for all the material affairs of life.

Physical life depends largely on physical means for its maintainence, all of which as suggested, must pass either consciously or unconsciously the censorship of the mind and be accepted or rejected from the standpoint of satisfaction. Mental life functions on a pabulum of ideas: they enter the mind over the sensory pathways and may originate either in the bodily soma or in the external environment. The physical existence goes on largely outside or beneath consciousness; we are seldom aware of digestion, respiration, circulation, etc. We are not particularly disturbed by dusty air until a particle lodges in the conjunctiva and yet we feel the need of a physical cleansing at the end of a dusty day to remove the innumerable particles that have been deposited on our bodies in a very real fashion, but whose presence, compared to the one in the eye amounts to nothing in the sum total of our comfort.

In like manner we are under constant ideogenous stimulation. To think of nothing is impossible. For the most part the assimilation or disposal of the ideas that reach the higher centers of the nervous mechanism goes on in a manner somewhat

comparable to the physical bodily processes just enumerated. It may be entirely below the conscious state or level of awareness. However, let something cross the threshhold of consciousness that has large affective emotional value and it at once dominates mental activity. It may be either of pleasurable content or of a nature to inflict unhappiness and ultimate discomfort on the individual. Since mind and body are indissolubly linked the body shares in the net effect. This is indeed an old story and has been placed on a solid foundation by the work of Pawlow and Cannon in particular.

It is my hope that what I have said thus far has, so to speak, set the stage for the elucidation of the mechanism by which the various functional nervous disorders, collectively spoken of as the psychoneuroses, or their conversion phenomena come about. The extent and locus of the disbursement of the emotional affect upon the somatic portions of the body will determine whether the patient presents himself as a pure neurosis or as a combined nervous-visceral entity or possibly what appears to be a definite organic case. I think I can best proceed by illustrative case sketches:

A middle aged farmer complained of nervousness limited to a subjective feeling of uneasiness, insomnia and loss of appetite. The physical and neurological examinations were negative. Investigation disclosed that the trouble had a definite date of onset and that this followed closely upon the loss of money in a land deal. This is nothing more than exaggerated simple worry and represents an example of a relatively early stage in the evolution of a psycho-neurosis.

The next case shows the result of repression and partial conversion to a vicious syndrome:

A man 38 years of age, no occupation at present and for two years previously other than occasionally playing the stock market in a small way, and always successfully, pre-sents himself with the complaints that he is afraid he is going to murder his wife and three children, and occasionally palpitation of the heart. He stated he had nothing bothering him now. "I got rid of all worries years ago." The essential facts are that at age of 28 he had married a moron girl of fifteen. He soon tired of her but because she had given birth to his three children he could not tolerate the thought of divorcing her. Six years previously she had started divorce proceedings under the mistaken notion that she was to be deserted. He pacified her and soon "forgot it." About this time a nearby neighbor killed herself and children He promptly absorbed the suggesion as a solution of his problem. The conflict here is the continued dissatisfaction with the woman of his choice and his wish to rid himself of her. which is completely blocked by his regard for her in the mother role. The suggested release by murder is a conversion to a but slightly less painful idea. The emotional affect is gradually being fixed through subconscious channels on his heart. The first doctor who tells him he has heart disease will complete the somatic transfer and make him a cardiac invalid until he is permanently separated from his wife.

The following case shows how the affect, that is the thing the patient complains of, may have no conscious connection with the real cause of the trouble:

A young woman school teacher 25 years of age has for some months complained of weakness and a feeling of depression. A little more than a year previously she had had a pleurisy with effusion which had yielded nicely to a four months' course of bed rest. Her cure was complete and repeated expert clinical and X-ray examinations failed to reveal any trace of active disease. I had seen her once in consultation and made a diagnosis of an undifferentiated psychoneurosis. Some weeks later I was invited to take care of her. It was soon evident that the cause of her trouble was buried deeply. After about ten days of analytical conversations a lead was uncovered that promptly led to something which she refused to discuss. She lay in bed twelve days thinking about it with every evidence of great emotional stress and finally with considerable display unburdened her mind. She had been a masturbator for some years up to age of sixteen and through reading some quack literature she had acquired the notion that she had ruined herself as a prospective wife and mother. Her mental condition previous to the attack of pleurisy had been one of active concern; the rest cure had subconsciously suggested a way out, that of permanent semi-invalidism. She began to teach in one month, and has remained well for two years.

One more case that, for obvious reasons, I will not soon forget, will show that these things are of serious import to the patient:

A chemical engineer, a university graduate 32 years of age, came in with torticollis to the left. Two years previously his wife lay dying from a peritoneal carcinomatosis. The patient was kneeling at her bedside and in order to avoid her gaze he turned his head to the left. It continued in that position to the end of his life. He thought that the cause of his wife's death was a neisserian infection of his youth. He had been repeatedly told by good men that he had no trace of the disease and the fallacy of his ideas had been pointed out to him without avail. Obviously, since he was apparently amenable to reason, but could not apply it to his situation to his relief, there must have been some other factor in operation. There was; during a lovers' quarrel in their early married life, he had a transient wish that his wife would die. This information was obtained in his case by dream analysis. The recurrence of this death wish was so intolerable that he could not be carried on any further. He had been threatening suicide, and two days later shot himself, after sitting up all night and carefully arranging his business affairs. Here

is a case where a man's ideas killed him. He was not insane; he discussed the matter of suicide in reasonable calmness and deliberately chose that method as an escape from a situation composed entirely of erroneous mental concepts, but which to him were very, very real and painful.

In order to bring out the purpose of my paper I have unavoidably overstepped mildly into the realm of psycho-therapeutics. It is not my intention to follow this up, but the last case requires me to state that treatment is individual and selective and like the surgeon in his operative work, there is often an unavoidable element of risk involved that mitigates against a favorable outcome.

The first stage in the evolution of the psychoneuroses is doubt; a state of uncertainty. This leads to fear and unassuaged fear is worry. Worry is probably the earliest clinical expression and manifests itself fairly true to type as a rule. The prevalent notion about worry is to "forget it." This is equivalent to losing a portion of the brain and is therefore an impossibility. Repression is applied and as a result the patient believes he has forgotten his troubles and smiles once more. Repression has very distinct limitations, especially with matters that carry with them a large load of affective emotion, which is affective nervous energy and eventually will require expenditure. This initiates conversion and the visceral or somatic fixation determines what the patient complains of. When the affect is completely dissociated from the cause by long standing fixation or repeated transfers these patients lose much of their nervous instability and come to complain only of some somatic disorder. This represents the end product of the developmental process, namely hysteria, the most common disease in civilized society.

Some believe that the people who develop these conditions are different in some way. This is the notion that by heredity they are predisposed or predestined to nervous and mental abnormalities. belief will not withstand impartial criti-The best answer for me at this moment is that the individuals making up the great bulk of those suffering from the psychoneuroses come from the rank and file of humanity that are doing the world's useful work. I do not deny that there are certain types of congenital psychopathic individuals, but they are distinctly outside the pale of this discussion. Also a proportion of the psychoneurotics will, if not properly cared for, evolve into true psychoses. Their prognosis then is somewhat unfavorable and their treatment a much greater problem. It should be the office of the physician to anticipate and, if possible, to avoid these unhappy end results. The early warning signs are either in evidence or easily discernible for him who has eyes to see.

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### RINGWORM OF THE HANDS AND FEET

JAMES STEVENSON, M.D. TULSA

In 1869 Hebra described a condition of the upper inner thigh and groin which he called eczema marginatum and soon thereafter Pick, Kaposi and others proved this disease to be a mycotic infection. The condition has commonly been called jockey strap itch, or Dhobie itch. In 1908 and 1910 Sabouraud and Whitfield independently described the disease as it occurs on the feet and hands. In this country the papers of Ormsby and Mitchell and C. J. White first described the condition and since that time eczematoid eruptions of the hands and feet due to fungus infection have been recognized with increasing frequency until the disorder has become established as one of the most common of the cautaneous diseases. This disease, called epidermophytosis or dermotophytosis, is prevalent throughout the country, but is extraordinarily common in the southern states. From May to October this condition is present in fully fifty per cent of the people who consult me. A disease so prevalent in Oklahoma is worthy the serious study of all medical men.

While it should be pointed out that epidermophytosis frequently affects the groin, and commonly enough the axilla and other parts of the body, in this paper the disease will be considered only as it affects the hands and feet.

#### ETIOLOGY

Sabouraud described epidermophytos's of the crural region caused by the epidermophyton crusis, whence came the name of the disease. While the same fungus may be the cause of the disease as it affects the hands and feet, many other fungi are causative also. Nor is it certain that bacteria may not be the active cause in numerous instances. The complexity of this phase of the subject is emphasized by

a perusal of Weidman's paper. For our purpose here, it may be stated that the disease is due to pathogenic fungi of numerous varieties, the complete classification of which will in due time be set forth by the mycologists. From a practical standpoint the points of interest are how one contracts the disease, its clinical recognition and its treatment.

Epidermophytosis is distinctly seasonal, being most prevalent during the summer months and in persons who perspire freely. Untreated, it is chronic, usually subsiding during the cold weather only to reappear with the advent of spring.

Epidermophytosis is so common among members of the country clubs about Tulsa that it is popularly known as "golfers itch." The floors of shower baths are frequent sources of infection.

Wool and leather are also common sources of infection. Many instances of the disease can be traced to the use of such articles as suspensory bandages, athletic clothes, baseball gloves, bathing suits, handles of golf clubs, shoes and boots, towels, soiled underwear and the like. The fungi are extraordinarily resistent and the ordinary process of laundering does not appear to destroy them. A case of my own illustrates the vitality of the fungus. A man with epidermophytosis of the feet was clinically cured, but had a recurrence after donning a pair of hunting boots which he had not worn for eleven months.

The above mentioned sources of the infection could be much amplified, but enough has been said to point out that one does not contract the disease directly from another person, but through some inanimate object.

#### SYMPTOMS

The subjective symptoms of epidermophytosis are few. Itching is often present and may be intense. Pain is frequently severe in the fissured type. The guises in which the disease attacks the hands and feet are as follows:

- 1. Vesicular.
- 2. Scaling.
- 3. Macerated.
- 4. Fissured.
- 5. Callous.
- 6. Keratotic.

The first three are the types most seen.

1. The Vesicular Type. This is the most frequent manifestation of the disease and is generally limited to the lateral aspect of



**EPIDERMOPHYTOSIS** 

the fingers and toes and to the palms and soles. The vesicles are deep seated, round and average one millimeter in diameter. They frequently have a dark blue center, an important diagnostic point. While they tend to be discrete, coalescence is sometimes noted, most often on the palms. The vesicles soon rupture on the fingers and toes because of the thinness of the skin leaving raw oozing tender eczematous surfaces. On the soles where they most often are seen on the arch of the foot they also rupture and if the area involved is great, walking is a painful process. The palmar vesicles do not so often rupture, due to the thickness of the stratum corneum. Most often they are absorbed.

2. The Scaling Type. This form of epidermophytosis may be primary, and is often so insignificant that close observation is needed to disclose them. The scales are small, white and rather easily removed without bleeding occurring. The junction of the toes with the foot proper and the fourth interdigital space of the foot are the favorite locations of this lesion. The scaling type is usually a secondary lesion or occurs on connection with one of the other types. Vesicles often rupture leaving a tiny col-

larette of white scales to mark the site of the primary lesion.

3. The Macerated Type. This form is most common in the webs of the toes and less so in the webs of the fingers. The clinical appearance is unique. The fourth toe spaces present the condition most severely as the small toes are generally pushed around so as to lie partly under the fourth toes and the sweat having less opportunity of dispersion the tissues are water-soaked, forming an ideal medium for fungus growth. The epidermis is dead white and lardaceous, and occasionally a lump of it can be quite easily detached. This is often call a "soft corn" by the laity and by chiropodists.



**EPIDERMOPHYTOSIS** 

The other types of epidermophytosis affecting the hands and feet are much less common than those described. Cutaneous fissures occur chiefly across the webs of the toes or at the junction of the toes with the ball of the foot. Translucent canary yellow callouses occur on the heel, ball of the foot or the inner aspect of the great toe. In the keratotic form split pea sized keratoses, suggestive of arsenical keratoses, occur upon the palms and soles.

Fungus infection of the nails often oc-

curs and affords a therapeutic problem of the greatest dificulty. The nails are thickened, opaque, dirty gray or yellow, friable, and usually pitted or striated vertically. A severe paronychia of mycotic origin has also recently been described by Kingery and Thienes'.

#### DIAGNOSIS

The diagnosis is generally readily made from the clinical appearance. If one is uncertain, recourse can be had to cultures on Sabouraud's medium, or to the examination by the alkali technic. In this latter procedure scrapings from the lesions are placed upon a glass slide or the top of a vesicle removed and placed bottom side uppermost on a slide, and a few drops of ten per cent sodium hydroxide added. A cover slip is applied and the slide is warmed to hasten the keratolytic action of the alkali. Mycelia and "yeast" cells may then be found on microscopic examination. In connection with this laboratory procedure, however, it should be pointed out that in many instances of clinical epidermophytosis it is impossible to find the fungus except on frequent and prolonged examinations.

#### TREATMENT

The patient should have a careful explanation of his disease, that it is infectious and communicable to his intimates. If the manner in which the disease is contracted is told him he will avoid shower baths and will use only boilable clothing next his skin. He should use paper towels. When clinically cured he will destroy his shoes, gloves, etc., and procure new articles of wearing apparel. Thereafter he will wear wooden sandals when using shower baths.

In the local treatment of the condition a host of drugs have been tried; always a sign of therapeutic weakness. Many cases clear up with a given remedy, while others do not respond at all to the same therapeutic agent, and some still have their disease when the pharmacopeia has been exhausted.

In the vesicular type the vesicles may be opened antiseptically and hot soaks of potassium permanganete 1:1000 applied. In moist or macerated areas crude coal tar ointment often does well. The classical treatment of the scaling, fissured and keratotic types is with Whitfield's ointment:

Salicylic acid gr. XV Benzoic acid gr. XXV Petrolat ounces I Practically I find this ointment only useful when the amount of salicylic acid is much increased.

I find the X-ray of great service in those cases associated with hyperidrosis.

A word of caution may be added about the treatment: many of the drugs now used, particularly the volatile oils and chrysarobin, should be used with caution, as they not infrequently give rise to a dermatitis worse than the original disease.

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### PERNICIOUS ANEMIA\*

RUSSELL C. PIGFORD, M.D. TULSA

Definition: The clinical entity, pernicious anemia may be looked upon as an anemia of unknown origin, affecting primarily the blood, the gastrointestinal and the central nervous systems, and progressing, usually with remissions, to a fatal issue.

Incidence: Pernicious anemia is essentially a disease of late middle life, although it may be seen at any age. Though cases have been reported throughout the civilized world, the greatest prevalence seems to be in the eastern and northern parts of the United States, and the northern part of Europe, the Nordic races being especially prone to develop the syndrome. Blondes are more often affected than brunettes. The incidence is slightly higher in males than females.

Etiology: The past few years have brought to light a mass of information concerning the causative factors in the production of Addisonian anemia. The results of the many investigations have been conspicuous because of the negative findings:

In his recent excellent review Wintrobe considers two possible theories: first, gastro-intestinal infection or toxemia, and second, dietary or vitamin deficiency theory.

<sup>\*</sup>Presented at the meeting of Tulsa County Medical Society, October 22, 1928, as a part of the symposium on anemias.

The gastro-intestinal infection or toxemia theory is based chiefly upon the laboratory observation of true achlorhydria, a condition that often precedes by many months the appearance of the classical syndrome; and one that persists even after disappearance of subjective and the other objective findings following liver feeding. The hereditary or familial feature of the disease has some support in this theory, as it has been found that in some of the cases there is a familial tendency to achlorhydria. When one recalls the functions of the hydrochloric acid, it is not difficult in the absence of hydrochloric acid to visualize the occurrence of bacteria higher in the gastro-intestinal tract than normal; nor can one fail to realize the possible formation of toxic amines as a result of incompletely split proteins. The possible offending organisms that have been investigated are too numerous to consider at this time. Suffice it to say, fungi, spirochetes, hemolytic streptococci, bacillus coli, bacillus proteus and bacillus Welchii have been studied and found wanting. It is of interest to note that biological studies of bacillus Welchii have revealed the formation by this organism of a hemolysin, a neurotoxin, and butyric acid.

In most cases a history of dietary indiscretions, extending over a period of years, can be obtained. The patients usually give a history of eating scantily of red meats, with an excess of fat, particularly that derived from dairy products and pork.

Koessler and Maurer believe the disease to be due to a vitamin deficiency. They would consider the clinical picture a result of a shortage of vitamins A, B and C. The blood changes they believe are attributable to a lack of vitamin "A", the nervous manifestations to a diminution of vitamin "B" and the hemorrhagic tendencies to a shortage of vitamin "C". They claim very good results in the treatment of cases of pernicious anemia with a diet rich in these vitamins.

The vitamin or dietary deficiency theory has been further advocated since the advent of the Minot-Murphy modification of the Whipple diet. However, recent investigations of Minot and his associates would eliminate the probability that vitamin deficiency is a direct cause. The nature of the substance in liver that produces such dramatic alterations in the general picture of the disease is not that of vitamins.

Pathology: At autopsy there are a few

characteristic anatomical findings. There is a peculiar orange yellow color of the panniculus. The bone marrow is usually hyperplastic. The normal fat is replaced by red marrow. In those cases dying from an aplastic anemia, the marrow may be sclerotic. All organs, including the liver, lungs, spleen, kidneys, and at times the brain and cord are the sites of hemosiderin deposits. Fatty deposits present in the heart give rise to the descriptive term "tiger lily" heart.

The mucosa of the gastrointestinal tract shows a marked atrophy. This is most striking on the tongue, in the stomach and the upper intestinal tract. Eighty-five per cent of the cases show degeneration of the posterior and lateral columns of the spinal cord. This is usually seen in the cervical and upper thoracic region Occasional similar lesions are found in the brain substance.

Course: Pernicious anemia runs quite a variable course. Some patients live eight or ten years after the onset. A few cases have been reported in which the condition was known for twenty years. These are exceptional as the average duration for life is three to five years. There is an occasional case that runs an acute course, the patient dying within a few months. The classical picture is that of progesssion, with periods of remission, alternating with periods of relative freedom from symptoms, death resulting from anemia.

Tuberculosis is a rare complication. The patient usually presents himself to the doctor during an exacerbation. But during remissions he is relatively free from any symptoms, and a diagnosis is made only after a careful physical examination, the finding of megalocytes in the blood smear, or the discovery of a true achlorhydria.

Symptoms: In addition to the symptoms common to all anemias, other symptoms may be divided into: first, those referable to the gastro-intestinal tract; second, those attributable to the central nervous system, and third, those pertaining to the cardiovascular system.

Of the gastro-intestinal symptoms the most common anamnestic finding is a story of intermittent sore tongue. The patient will admit having had a glossitis of several years duration, situated around the borders of the tongue. They complain also of tingling sensations in the tongue.

Gastric symptoms of anorexia, eructation, heart burn, and nausea are not uncommon. In practically all cases a history of diarrhea will be obtained. They frequently present themselves with this symptom as the chief complaint. The stools are loose and watery. There is no dysentery. The symptoms referable to the central nervous system are those associated with posterolateral sclerosis. Tingling sensations, numbness, and paresthesias of the extremities are most common. The chief circulatory manifestations are those of cardiac pain. Coombs in a recent review has found that true anginoid attacks are occasionally encountered.

Physical findings: On physical examination one sees an individual who in spite of his complaint of marked weakness seems well nourished. In fact he is without emaciation and has lost very little weight. The hair, as a rule, is prematurely gray. There is a peculiar lemon or grape fruit color of the skin even though the sclerae may be without jaundice. The mucous membranes show a marked pallor. It is this pallor together with the lack of emaciation and the vellow skin that differentiates pernicious anemia from any other diseased condition. The tongue may be reddened on the margins, or, if the case is an old one, it will present a smooth, pale and atrophied appearance. Hemic murmurs may be found on examination of the heart. There is a loss of vibratory sense, as demonstrated by placing the tuning fork over the tibia. Localized or generalized edema may be found. Some cases run a febrile course not unlike that of mild tuberculosis. The blood pressure is low and the pulse is rapid.

*Blood*: There is a reduction of erythrocytes and to a less degree a reduction in the hemoglobin giving rise to a high color index. The leucocytes are reduced in number at the expense of the polymorphonuclear elements. In general it may be said that the platelet count coincides with the remainder of the formed elements. The blood smear is quite characteristic. Every variety of erythrocytic change will be seen. However, while the secondary anemias are marked by a tendency to microcytosis, the cells of pernicious anemia tend to be larger than normal. Instead of a normal measurement of 7.4 to 8. micra, the cells in pernicious anemia range from 8 to 13, with a median of 10 micra. The resistance of

the red blood cells to a hypotonic salt solution varies. In some it is found to be increased, and in others it is decreased.

Chemistry: The sugar, chlorides, calcium, and nitrogenous elements of the blood are not altered in pernicious anemia. Gorham and Myers have found low cholesterol values in some cases.

Biliary pigments: The biliary pigments in the blood and in the stools are moderately increased. The icterus index of the blood is above normal and falls in the range of latent jaundice. This observation serves to differentiate pernicious anemia from the secondary anemias as in the latter conditions the icterus index will be below normal. The Van den Bergh reaction direct is negative, while the indirect is increased, thereby placing the anemia in the hemolytic rather than in the nonhemolytic group. Urobilinuria is found at times and there is an increase of stercobilin. These facts further corroborate the theory that in pernicious anemia there is increased red blood cell destruction, that, as a result of this increased cell destruction there is an increased formation of bilirubin by the reticulo endothelial system, that the liver is unable to take care of this excess of bile pigment, and the overflow is circulated in the blood stream and is discharged via the stools and the urine.

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#### THE KETOGENIC DIET IN EPILEPSY

### E. K. WITCHER, M.D. TULSA

Epilepsy is not a disease entity. It is a syndrome due to many causes. A thorough study of each patient must be made. Such a study should include: (1) a physical examination; (2) a neurological examination to exclude organic disease of the nervous system. Such a study will include a blood Wassermann, a spinal fluid Wassermann, a complete examination of both blood and spinal fluid, an examination of the stool for parasites, an examination of the urine, x-ray of the head and gastro intestinal tract, an investigation to discover any psychogenic factors.

The history of epilepsy is long, that of the ketogenic diet short. However, in a condition long regarded as incurable a method of treatment without the use of drugs which accomplishes a fair percentage of vastly improved cases is worthy of serious consideration. The origin of the ketogenic diet treatment goes back to 1910. In that year Guelpa and Marie, French clinicians, discussed fasting in the treatment of epilepsy. This method produced the state of ketosis which is the basis of the ketogenic diet. In the absence of sufficient carbohydrate and protein the body fats are utilized and the state of ketosis produced. Obviously ketosis thus produced is not satisfactory as a prolonged treatment. Epileptic attacks in children were prevented while on starvation, but attacks recurred upon the resumption of feeding. Wilder in 1921 first suggested the use of high fat diets in the treatment of epilepsy. He had been working on their use in the treatment of diabetes mellitus. In 1921 the use of the diet was begun in the Mayo Clinic. The results in adults were indifferent. Helmholz and Peterman utilized the diet in children. Five years' experience showed 31 per cent of children with idiopatic epilepsy had had the attacks abolished. There was definite improvement in 23 per cent bringing the per cent benefitted to a total of 54. In the other 46 per cent there are many cases reported as temporarily improved.

The essence of the diet is the feeding of a high per cent of fat with a minimal amount of protein and carbohydrate foods. The object of the diet is to produce ketosis as shown by the presence of diacetic acid and acetone in the urine. This state is reached when there is incomplete combustion of fat. So long as there is one gram of carbohydrate available for four grams of fat in the diet, the fat is completely burned to carbon dioxide and water. If the ratio of 4 to 1 is increased to the ratio of 5 to 1 the fats are incompletely burned and acetone and diacetic acid will appear in the urine. Large amounts of acetone and diacetic acid may be excreted in the urine for weeks or even years without any untoward symptoms.

The preparation of the diet for two weeks should be in the hands of a competent dietitian. The basal metabolic requirement is determined from the Dubois normal standard. To this is added 30 per cent for maintenance and growth. Following items are provided for: protein sufficient to replace nitrogenous waste and build new tissue: minerals that are essential, the vitamins, and water. It has been found practicable to place the patient on a diet containing 75 grams of carbohydrate the first day, to reduce this to 50 grams on the second day, to 30 grams on the third day. On the fourth day the ultimate prescription is given.

After the education period, during which the patient or a member of his family learns to weigh and select the articles of his diet the adult patient goes home to continue his diet for six months. He learns to test his urine for acetone and diacetic acid as does the diabetic to test his urine for sugar. He is instructed to keep a diary of the attacks if any occur. If benefit has been obtained at the end of six months the patient continues the diet in a slightly modified form. If under this graded modification improvement ceases the more rigid diet is resumed. The patient's threshold of tolerance for a more normal diet has been crossed. A limited experience indicates that two years is the shortest period in which one may expect the patient to be able to live in a state of health on a normal diet.

KETOGENIC DIETS IN EPILEPSY — LOUISE WILKINSON, DIETITION, MORNING-SIDE HOSPITAL, TULSA

The prescription for the diet, when first begun, is as follows:

Fifteen to 20 grams of carbohydrate; 1 gram of protein per kilogram of body weight and the remaining caloric requirement in fat. For a man whose weight is 160 pounds the prescription would be 20 grams of carbohydrate, 72 grams of protein, 208 grams of fat, making a total of 2246 calories.

The big problem of the diet is to make it palatable and attractive, and still take care of the high fat content. The fats are furnished mainly from cream, butter, salad oils and fat meat. Most patients revolt at

taking a too obvious quantity of these, consequently some of the fats must be disguised if possible.

The low carbohydrate allowance results in a lack of bulk, which presents two problems. The patient may feel the pangs of hunger, although getting enough calories; constipation may develop if proper exercise is not taken, unless he resorts to medication. Such additions to the diet as bran muffins, containing very little nutrition, are helpful. The vegetables of the 3 per cent group are used entirely, in order to get in as much bulk and variety as possible. Fruits are used in each day's menu.

The patient's likes and dislikes are catered to in so far as it is practical, so that he will take all the food allowed on each tray.

Much is made of holiday menus and decorations to keep the patient's interest in the diet. At all times an attempt is made to make the tray appear like normal meals.

The menu below is typical of the food allowance for one day:

#### BREAKFAST

70 grams

Grapefruit .....

Caterport are accession	O SI WIII			
2 eggs	100 grams			
Cream (whipping)	50 cc.			
Racon	75 grame			
Butter	10 grams			
Bran muffins	1			
DINNER				
Chicken	150 grams			
Spinach	75 grams			
Spinach	35 grams			
Bran muffins	. 1			
Bran muffins	12 ounces			
Custard:				
Pumpkin	35 grams			
Cream (whipping)				
2 eggs				
SUPPER				
201121				
Salad:				
Apple	40 grams			
AppleGrapefruit	35 grams			
D	10			

Pecans ..... 10 grams

Mayonnaise ...... 20 grams

American cheese ..... 24 grams

Sliced tomatoes ..... 50 grams

Bran muffins ..... 1

Butter ..... 15 grams

D-Zerta \_\_\_\_\_\_2 Cream \_\_\_\_\_50 cc.

Lettuce leaf

# THE ROLE OF THE PATHOLOGIST IN MALARIAL INFECTION\*

# S. C. VENABLE, M.D. TULSA

"Oh, beware of Dame Anopheles,
For hereon hangs a tale;
While hubby thrives on plant juice,
'Tis for gore she hits the trail:
So when you hear her singing,
Don't forget friend Kipling's wail,
That the female of the species
Is more deadly than the male!"

That the control of malarial infection presents a very real and pressing problem in Tulsa and vicinity will be readily admitted by anyone at all familiar with conditions in this section during last summer and fall. Coming to Tulsa about seven years ago, we found that in the routine examination of blood smears the plasmodium of malaria was a comparatively rara avis, but, after months of observation the belief has been forced upon us that we are witnessing a steadily mounting seasonal rate of infection, for which there should be very little excuse.

It is claimed by competent authority that with any sort of cooperation between the people of a district and their medical advisers, eked out by a small contribution from the county health department, malaria should take its place with the dodo and the dinosaur in the limbo of extinct and unmourned monstrosities. Modern medicine, brushing aside the blind faith in the igniis fatuus of the dank, noxious clouds of miasma arising from the swamps at nightfall, focuses its attention upon the much more real and substantial clouds of anopheles mosquitoes, arising from the same location, with blood in their eyes and the milk of human kindness clabbered in their breasts. The up-to-date epidemiologist approaches this problem from the preventative side, if he can; from the capsulological and hypodermicological side, if he must; and from both in many, many cases.

What is the pathologist's interest in this most distressing physical and economical handicap on the suffering public? To answer intelligently, one must first inquire. "What do you mean by a pathologist?" A short and inclusive answer would be "one who is learned or skilled in the structural and functional changes caused by disease." Could any technician or the

<sup>\*</sup>Read before the joint meeting of the Tulsa County Medical Society and the staff of the Oklahoma Hospital, Tulsa, Oklahoma, January 14, 1929.

host of conscienceless medical parasites, who prey upon the infirmities of the gullible public, possibly be included in this classification? Empthatically, NO! A pathologist should be a doctor of medicine. of wide acquaintance with both the theory and the practice of his profession; one whose mind is ever open to new truths and whose bark carries only the necessary canvas to take full advantage of every favoring wind, minus the bellying jibs and gaudy pennons streaming from the mastheads, whose sole purpose is to attract the eye of the beholder, without adding anything to the efficiency of the craft.

Now, lest someone say unto himself, "Heaven defend us, we are about to be subjected to a rehash of the trite and oftrepeated admonitions about screening of human habitations, using mosquito nets, draining or oiling of stagnant pools, thorough cinchonization of the populace, etc., etc., ad nauseam. Nay, brother, not so! All these measures are important but are too well known by any informed physician, in particular, those of you educated in our beloved Southland, for me to dwell on them.

"Then, why discuss the subject at all?" hazards Dr. Selfsufficiency. "We know all about malaria and its proper preventative and therapeutic management!" Oh, do you? How very interesting! Perhaps then you can give us the long sought answer to a few of the following questions, about which even the eminent sanitarians and epidemiologists of the national malaria commission are still uncertain.

1. Do all species of anopheles mosquitoes transmit malaria?

2. Is there any therapeutic agent equal to or better than quinine for the treatment of this disease?

3. Where are the parasites located in the body at various stages of the infection?

4. Is the parasite inside or outside the red cell?

5. Do non-infected mosquitoes live longer than infected ones?

6. How many oocysts are necessary to produce the infective mosquito?

7. Is relapse in malaria due to changes in the blood plasma, which make it easier for the merozoites to parasitize cells or to changes in the inhibiting power of the leucocytes?

8. What is responsible for latency, i.e., the period between inoculation and symptoms?

9. Is immunity to the disease acquired?

10. What is responsible for the extreme pathogenicity of falciparum?

11. What are the effects of quinine on the parasites themselves?

12. Is a complement fixation test practical in malaria carriers?

This will probably be enough. Now, folks, take your time; don't all speak at once! Remember that Drs. Ferrell, Darling, Bass, Welch, Fricks, Griffits and Barber and King, LePrince and Hegner will be sitting with bated breath and hanging on your every pronouncement with consuming interest, for these gentlemen are in the thick of the fight against the plasmodium. Yes, we know about as much about malaria as we do about the various other ills that flesh is heir to, and yet this is one of the few maladies with a so-called specific remedy. How we blind grubs do love to throw out our chests and delude ourselves and others about our vast store of knowledge, when we should be prostrate in the dust, awed into silence by the infinity of the unknown and the unknowable!

But, with all due humility, let us raise the paean of praise for the tireless endeavors of the many faithful workers, whose names will never adorn the Hall of Fame, and yet whose contribution to our knowledge of malaria and its proper methods of control and eradication is responsible for the fifty per cent reduction in the infection rate in the delta region of the Mississippi. Specialization has made such rapid strides that we are now able to discern upon the heights, the malariologist, that ne plus ultra, of whose very existence, in truth, I was wholly unaware until I began the collecting of data for this short paper.

The various states in which malarial infection is a major public health problem are cooperating with the county authorities and government experts, utilizing both men and money in a real clean-up campaign and the measure of their accomplishment can be taken in the greatly improved morbidity and mortality figures on this disease. "Yellow Jack" has struck his colors and fled, and his ally and fellowmurderer Blackwater Fever has the halyards in his hands all ready to follow suit when the proper pressure is applied. Do not be deceived. however, for the menacing plasmodium will not, out of the innate generosity of its nature, voluntarily retire from its gory feast! Ah, no! It will be wiped out only through the unremitting cooperation of the local physicians, the health officers and the *hoi polloi*, all of whom must use the contents of the old skull to the utmost of their ability.

One writer mourns that no epic has yet been written styled "The Vanishing Vivax" or "The Passing of the Plasmodium Falciparum" despite the fact that "these events, though less spectacular, are historically as interesting and economically of far greater importance to America than the fate of the Indian and the shaggy buffalo of the western plains."

411 Medical Arts Building.

# ABSCESSES IN THE REGION OF THE RECTUM

PAUL R. BROWN, M.D. TULSA

Abscesses in the region of the rectum are common, and a short paper on this subject seemed to me to be not amiss. A rectal abscess not promptly and properly treated will result in much suffering and disability to the patient and discredit for the physician. The rectum to the average physician and even to the general surgeon is an unknown field; they regard conditions affecting this region as trivial, when as a matter of fact perhaps as much suffering and disability are caused by diseases of the rectum as any part of the body.

#### CLASSIFICATION

Abscesses of the rectum may be classified according to anatomical location as ischio-rectal, subcutaneous, submucous, perirectal and tubercular. In addition to these classes, abscesses originating in other regions may track downward and involve the rectum, notably psoas abscesses and abscess of the urethra.

#### ETIOLOGY

Very slight abrasions of the mucous membrane of the rectum and peri-anal skin, injuries from fish and chicken bones which have been swallowed, tears due to hard fecal masses, the use of hard rubber rectal tubes, infected and gangrenous piles all may cause these conditions. Occasionally infection may be secondary to infection in other parts of the body, as in the case of tuberculosis; or in rare instances it may follow operative procedure in this region. The infecting organisms are, in most instances, the common pus producers, the staphylococcus albus and aureus. In perirectal abscesses the streptococci will ordinarily predominate. The coli is

ordinarily present but it is not often the primary infecting agent; the coli, however, is occasionally found in pure culture. In tubercular abscesses the tubercle bacillus may occasionally be found.

#### ISCHIO-RECTAL ABSCESSES

Ischio-rectal abscesses are those involving the ischio-rectal fossae on either side of the rectum. These spaces are filled with loose areolar tissue and are connected by a narrow isthmus behind the rectum filled with the same type of tissue. They are ordinarily single, but quite frequently an abscess originating on one side will burrow along this track and infect the other side. Above the levator ani, which practically surrounds the rectum behind, there is another space of the same type. Deep abscesses in this location are not easily recognized and are dangerous as they may track upward and invade the iliac fossa. Ischiorectal abscesses may become quite large before being recognized; the amount of foul smelling pus evacuated will often be out of all proportion to the apparent size of the abscess.

The symptoms are at first discomfort or pain around the rectum upon motion or upon standing or sitting; later, the pain becomes dull and throbbing, and there is great tenderness over the affected area with a sensation of heat and fullness in the rectum. There are frequently chilly sensations, or there may be an actual chill; the temperature is elevated, sometimes as much as three or four degrees; the pulse is rapid. When the abscess points toward the skin, this will ordinarily be on the inner side of the buttock close to the anus and the skin over the affected area will be tense and there may be a bluish or red discoloration.

#### TREATMENT

Early and free incision is the only treatment worthy of mention. Don't wait for evidence of pus for the abscess to point, nor do not poultice or use hot baths before incision in an effort to promote the comfort of the patient. Even if no pus is found on incision, you will promote drainage and limit the size of the abscess. They may be opened by a crucial incision extending out on the skin well beyond the limits of the abscess cavity, or by an elliptical incision large enough practically to permit you to lift off the top of the abscess, thus converting it into an open wound. Whatever method is used, the skin should be trimmed back from the edges of the wound for one-

half to three-fourths of an inch. If a fistula has formed, do not attempt to operate it at this time; wait until the abscess has almost healed, and then operate, and you will be able to get away with much less destruction of tissue. The after treatment is simple; no drain is used nor are they syringed out; simply dress them with a large flat dressing frequently changed. This dressing is held in place by adhesive strips across the buttocks. A hot bath two or three times a day keeps the wound clean, adds to the comfort of the patient and promotes rapid granulation. Scarlet red ointment may be used if the granulations become indolent. Care should be taken to see that the wound heals properly, from the bottom, that it does not bridge leaving a fistulous track and that the skin does not close in until the wound has granulated up flush with it.

#### SUBCUTANEOUS ABSCESSES

These are ordinarily small abscesses occurring close to the margin of the anus, just beneath the skin, the inside of the external sphincter. They are painful out of all proportion to their size, and do not involve the ischio-rectal space, this last distinguishing them from abscesses of that type. Tubercular abscess is frequently subcutaneous, but is not ordinarily painful. The symptoms are not marked. If a finger is inserted in the rectum the induration can readily be mapped out. Tubercular abscess is not indurated, or very slightly so; they are not as painful as the more acute type, and their pus is thin and watery, entirely different from the other type.

#### TREATMENT

If the abscess is small enough it may be enucleated; if not, incise freely and permit it to heal by granulation.

#### SUBMUCOUS ABSCESSES

Submucous abscesses are those occurring beneath the mucous coat of the rectum and between it and the muscular coat. They are generally chronic and may exist undetected for a long period of time. Their ordinary situation is just within the anal margin where they can be felt as a soft elastic swelling more or less movable on the muscular coat. Instead of a single abscess there may be one or more fistulous tracks running up under the mucous membrane, well into the rectum.

#### TREATMENT

The infected areas should be well exposed with rectractors and the tracks opened with a knife and the edges well

trimmed away with scissors. Bleeding will likely be quite free but may be controlled by the usual methods and a loose pack around a drainage tube. If a pack is used. after it is removed the rectum may be syringed out once or twice daily with a weak antiseptic solution. Submucous abscesses above the levator ani should not be opened from inside the rectum. Go in from the outside with a finger in the rectum; cut down on this, cutting the fibres of the levator ani transversely in order to secure good drainage, and put in two or three drainage tubes; shorten these tubes often. This type of abscess is obstinate and inclined to heal very slowly.

#### PERIRECTAL ABSCESSES

Perirectal abscess is a rare type of abscess due in most cases to infection with the streptococcus, and often accompanied with severe sloughing and gangrene. may follow a perimetritis due to torn cervix or stricture of rectum, may be the result of a psoas abscess tracking down alongside the rectum, may be due to tuberculosis, to necrosis of the pelvic bones, to abscess in the neighborhood of bladder or urethra or of prostate, or occasionally to an appendiceal abscess. The injection of strong solutions of nitrate of silver in an effort to cure fistula has caused it. The symptoms are pain and discomfort on going to stool, pain in the back over sacrum or in front over bladder. There is a profound toxaemia with high temperature and chills, and there may be a suppression of urine.

#### TREATMENT

The only treatment for these cases is free incision through the ischio-rectal fossa. If the abscess cannot be found or cannot be opened freely, open up the levator ani on one or both sides and search for the abscess with the finger or by blunt dissection with forceps. Cut the levator transversely and when the pus is found and evacuated put in a large sized drainage tube. Large hot packs may be used or, if the patient is strong enough, frequent hot baths. The bowels should be kept freely open and supportive treatment instituted. This is the most dangerous type of rectal abscess, and if it is not very promptly and freely drained you stand an excellent chance of losing your patient.

In conclusion let me say that no originality is claimed for this paper; the authorities on the subject have been freely consulted, and some of their ideas are incorporated.

#### EXTRAVASATION OF URINE

# HENRY S. BROWNE, M.D. TULSA

Extravasation of urine as a term is considered a misnomer by some, but is used by most authorities to denote an infiltration with urine of the tissues immediately surrounding the urethra. Saloway', in a most able article, recently reported that of eighty-three cases in Bellvue Hospital from 1917 to 1925, sixty-nine were due to stricture of the urethra, nine to infection, three to ruptured urethra and two in infancy. Thus over eighty per cent were due to stricture and these were always accompanied by peri-urethral abscess. The generally accepted theory of the cause of extravasation is that of mechanical obstruction by a stricture with consequent damming back of urine and pressure against a thin walled urethra, causing rupture. This is most frequently associated with the presence of infection in the glands of Littre and Cowper. The physical state of the urine has an important bearing on the course and prognosis of these cases. Normal sterile urine is nearly innocuous when injected into the tissues, while septic urine is very destructive and rapidly produces inflammation, gangrene and sloughing. The point at which rupture occurs is very important in determining the direction in which extravasation takes place, as that is limited by fascial planes. Wesson' has shown admirably the location and extent of the pelvic fascia so that if the rupture is in the bulbous urethra (the most common type) the extravasated urine will extend forward, first to the scrotum and then upward along the spermatic cords involving the penis and later the abdominal wall. It is prevented from extending on to the thighs by the attachment of the superficial fascia to Pouparts ligament. If the rupture is in the pendulous urethra the extravasation is confined to the penis by the dartos and superficial fascia. Rupture in the membranous and prostatic urethra have their definite routes of extension limited mainly by the triangular ligament.

#### SYMPTOMS

The symptoms vary depending on the duration, extension and virulence of the infection. Pain in the perineum is almost constant. The earliest sign in the most common type is induration of the bulb of the penis which feels very much like the bulb does when in erection. Frequently

there is pain with difficulty on urination, chills and fever of a septic type. The constitutional symptoms may vary from mild to fulminating, the latter showing a patient irrational with high fever, a rapid thready pulse and an appearance of collapse.

#### DIAGNOSIS

This is usually not difficult as when first seen the patient has swelling and inflammation in the perineum, scrotum and penis. It is in the early case with great prostration that the diagnosis may be difficult but the typical induration in the bulb of the penis is diagnostic. This is before the process ruptures through the bulb and infiltrates the surrounding tissues.

#### **PROGNOSIS**

There is an exceedingly grave prognosis depending on the duration of the extravasation, its extent and virulence and the resisting powers of the patient. The immediate mortality is about forty per cent and in the severe cases that recover large areas of skin become gangrenous and slough off exposing the testicles, penis and abdominal wall, so that plastic operations are usually necessary.

#### TREATMENT

Meeker<sup>3</sup> in reporting seventy cases says the treatment should be prompt and radical and in this he is only amplifying the experience of others. As the process begins in the perineum, that should be freely opened first and wherever the skin is edematous free incisions must be made and left open. Drainage tubes should be used freely. I do not believe the stricture should be attacked at this time unless there is retention, for the patient is already in a serious condition and to do only what is necessary is indicated. The stricture can always be dilated at your leisure.

#### CASE REPORTS

Case 1. H. T., colored, age forty, was brought to the hospital in a delirious condition July 3, 1927. No history was obtainable except that five days before he was unable to urinate and attempts had been made to pass sounds without success. He appeared extremely ill, his bladder was distended to the umbilicus, the scrotum, penis and abdominal wall were infiltrated and there was a gangrenous odor present. A suprapubic cystotomy was done at once and free incisions made where necessary. The glans penis was found to have slough-

ed off. He never recovered consciousness and died thirty-six hours later.

Case 2. W. M., white, age thirty-eight. One week before admission to the hospital in May, 1928, he had acute retention and was relieved by a metal catheter, there being great pain at the time and considerable bleeding. Since then he has been in great agony with chills, fever, difficult and painful urination. On examination he appeared extremely ill and the perineum, penis, scrotum and groins were swollen and inflamed. Free incisions were made wherever necessary. The next day the process was found to have extended up the abdominal wall so fresh incisions were made. He then improved markedly for ten days, with sloughing of the skin of the penis and abdominal wall. Acute retention then developed. There was always a purulent urethral discharge present, so following catheterization he developed fever and chills and died in three days of sepsis. Possibly if a cystotomy had been done instead of catheterization he might have recovered.

Case 3. G. S., age fifty-nine. He had been having difficulty on urination from a stricture for about ten years. For the past month he has been able to urinate only in dribbles with great pain. When seen in September, 1928, a filiform was passed into his bladder without much difficulty followed by a No. 14 F. Lefort sound. He urinated freely after this. Two days later he developed a septic temperature and a typical induration in the bulb of the penis. The next day his symptoms were worse and the induration greater. An incision was made therefore in the perineum and some pus removed. Drainage tubes were inserted. Improvement was prompt and in three days the tubes came out with considerable gangrenous tissue. Recovery was uneventful.

Case 4. G. H., white, age thirty-four. He had had a stricture for eight years, during which time he had had four attacks of acute retention which had been relieved by catheterization. When seen October 20, 1928, he had not urinated for twelve hours and several attempts to pass sounds had been made previously without success. He was in great pain and there was blood at the meatus, indicating urethral trauma. After some difficulty a filiform followed by a Phillip's catheter was passed into the bladder and the urine withdrawn. He threafter urinated freely and on the third

day complained of listlessness. There was present a typical induration in the bulb of the penis. He was told to report back the next day but was found that morning unconscious with high fever and a rapid thready pulse, having been overwhelmed suddenly by the toxemia. An incision was made at once and drainage tubes placed in the deepest parts. He was very ill for four days and then the tubes came out with a large slough of gangrenous tissue, after which recovery was uneventful.

Case 5. E. B., colored, age thirty-nine. He had been operated on for stricture ten years before but always has had trouble urinating since. He was first seen on December 10, 1928. Two weeks previously while hunting he fell straddling a fence rail and shortly afterwards noticed a lump in his perineum. This has gradually grown larger and for a week he has been in bed. He urinated, but with difficulty and did not look ill. There was an indurated area in the perineum extending upward behind the scrotum which was quite edematous. An incision was made in the perineum at once and a large amount of foul pus removed. Drainage tubes were placed in the deepest parts. There was a profuse purulent discharge for a week with large sloughs of gangrenous tissue. The edema of the scrotum disappeared spontaneously. Recovery was complete.

Case 6. P. S. T., colored, age thirtyeight. This case is almost identical with the previous one, except that no direct cause of the extravasation could be found. The process had extended from the bulb to the surrounding perineal tissues. Thorough drainage resulted in prompt recovery. He was first seen January 4, 1929.

Six cases of extravasation of urine have been presented, two in the first stage involving the penile bulb only, two in the second stage in which the surrounding perineal tissues were involved and two in the third stage in which the scrotum, penis and abdominal wall were involved. The first four recovered, the last two died, a mortality rate of thirty-three per cent. The earliest case (twenty-four hours) showed a virulent toxemia and the latest one (two weeks) showed hardly any systemic effects at all. Four were caused by instrumental trauma, one by external violence and in one the cause was unknown. All six had urethral strictures.

#### CONCLUSIONS

1. Extravasation of urine is a very ser-

- ious condition requiring immediate operation.
- 2. The perineum should always be drained first as it is the original site of the rupture.
- 3. Extravasation is nearly always associated with a stricture of the urethra.
- 4. The earliest sign of extravasation is a typical induration of the bulb of the penis which feels very much like the bulb does when in a state of erection.
- 5. A case of acute retention or a tight stricture should never be instrumented except by a filiform followed by a Phillip's silk catheter or leader bougie which conforms to the shape of the stricture, while the Lefort steel follower makes the stricture conform to its curve and thus may cause rupture of the urethra.

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### MESENTERIC CYSTS

# R. Q. ATCHLEY, M.D. TULSA

The purpose of this paper is to review available literature, stimulate interest in this comparatively rare condition and report a case of mesenteric cyst.

The more common things of our profession are most uppermost in our minds when a given case is presented but the less common are not so present and sometimes lead us into error.

It seems by reviewing the literature that this is the situation regarding mesenteric cysts, they having been heretofore seldom diagnosed preoperatively.

#### HISTORY

The first known case of mesenteric cyst recorded in literature was by a Florentine anatomist, Benenvieni 1570. He described it as an anatomical curiosity. Since that time about three hundred cases have been discovered. In modern times Rokitanski, 1842, first diagnosed mesenteric cysts from necropsies, none having been diagnosed antemortem. From 1850-1880 they were occasionally operated with fatal results. Even in 1883 Collett writes exhaustively that up to that time laparotomy for mesenteric cysts had never been successfully performed following a correct diagnosis. About this time Pean (Fr.) did a

Marsupialization operation and proved it to be successfully operable.

Niosi in Virchow's archives reports 184 mesenteric cysts. In 1886 Augagneur collected statistics showing that 18 out of 90 cases or 5 per cent of mesenteric tumors were cystic. His work with the monographs of Broque in 1892 and later works by Moynihan and Dowd, and Pfaff in 1905, along with such French surgeons as Pean, Millard and Tillaux, gave a new impetus to study of mesenteric cysts..

#### FREQUENCY

Mesenteric cysts are probablly more uncommon than similar lesions of any of the structures of the abdomical cavity. The difficulties of early diagnosis, the high mortality rate, behooves us to give more attention to this particular disease.

Up to 1923 only 200 cases had been recorded. In the California Hospital 2 cases had been found in 1574 laparotomies. The Massachusetts General Hospital in a recent communication reports from 1900-1926 only six cases of mesenteric cysts operated with no follow up history and no deaths. One case was reported inoperable. The percentage of cases in this hospital must be very small compared with the larger number of major cases reported in the 26 years.

In the last five years less than a hundred have been added to the slowly growing number of cases reported.

Data is sometimes difficult to get from our large clinics; which may help to lessen the number of cases written in the literature.

#### **ETIOLOGY**

The genesis of mesenteric cysts is some what obscure, but they must be of embryonic nature, owing to the frequency in the young, but are sometimes found in adult life.

Many clues as to the origin have appeared in literature, but those of Dowd (appearing in Annals of Surgery, Vol. xxxll, page 515) written in 1900 giving them an origin from the Wolfian body, has gained great favor, they being occlusion remnants in the developing peritoneal folds.

He showed how these cellular relics undergo cystic degeneration and give rise to the cysts at the most common locations, e.g. that of the ileocecal valve, the appendix and the terminal illeum, although they

have been demonstrated along the entire colon.

There is good evidence also that they may be of intestinal origin, from diverticuli. Dowd acknowledges this classification as a probable origin.

Strode and Fennel, writing in the S. G. O. report a case in an infant that showed all the coats of the intestine, and probably originated from misplaced entoderm epithelial cells in the walls of the gut.

Microscopic examination of the walls of the cysts throw very little light many times on the etiology, owing to the extreme thinning before the specimen is procured.

The broader classification of mesenteric cysts by Cortez, Usher and Moynihan must be included in an article of this kind, and are as follows:

- 1. True mesenteric cysts.
  - a. Embryo-cystomata.
  - b. Enterocystomata.
  - c. Obstructive.
- 2. Dermoids.
- 3. Cystic malignant diseases.
- 4. Parasitic.

#### MOYNIHAN

- 1. Serous cysts.
  - a. Originating from lymph channels or hemorrhage, between layers of the mesentery.
- 2. Chylous cysts.
  - a. Obstruction to lacteals with milky fluid content.
- 3. Hydatid cysts.
- 4. Blood cysts.
- 5. Dermoid cysts.
- 6. Cystic malignant diseases.

Many other classifications have appeared that seem to be worthy. The obscurity is probably due to the condition of the cyst found at operation or autopsy.

From the classifications it may be assumed that Dowds probably applies most logically as follows:

- a. Embryonic cysts.
- b. Hydatid cysts.
- c. Cystic malignant diseases.
- d. Cysts arising from glandular structure or intestinal wall.
- e. Cysts of the normally placed intestinal glands.

The above was modified by Niosi in 1907.

#### LOCATION

The location of mesenteric cysts are in a great per cent of cases in close vicinity to the illeum, illeo-caecal valve and jejunum.

Only 10 per cent, about 30 cases in literature have occurred in the mesentery of the colon. Doctors Humison and Prette of Chicago, report a case in the ascending meso colon.

Mesenteric cysts vary in size from that of a split pea to filing the entire abdomen, they are usually oval or round, nodular, unilocular or mutilocular and contain clear, serous fluid with floculi, cholestrin crystals, blood or milky fluid as in the chylous variety.

#### DESCRIPTION

The walls are usually thin (1 cm.) fibrous, very movable and covered with loops of intestine. The inside is usually smooth and shiny. Their growth is usually rapid hence the greater per cent found in the young, although some are quiescent, going on to adult life, or only found at autopsy; death having occurred from other causes. Occasionally ruptures occur resulting in peritonitis.

#### SYMPTOMS

The symptoms of mesenteric cysts are vague and indefinite and do not present a clear cut clinical picture.

Pain is a very frequent symptom, if pressure is a factor, coming in attacks at varying intervals of time, months to years, occasionally associated with vomiting, especially if there is encroachment on the lumen of the gut nerves or blood vessels leading to it. There would be, of course, concomitant increased peristalsis in an attempt to overcome the partial obstruction or partial volvulus that often occurs from the weight of the cyst.

Shands states that if there are any clear cut symptoms they are the presence of a tumor in the abdomen, centrally located and having an unusual degree of motility with possibly more freedom laterally.

It must be borne in mind that these cysts are very frequently crossed by gas, filled intestines, and give a tympanitic note. In close proximity will likely be an area of dullness.

Small cysts may give no suggestive symptoms and naturally would be confused with appendicitis, volvulus, intussusception, cholecystitis ectopic pregnancy, or ruptured peptic ulcer.

#### DIAGNOSIS

The diagnosis of mesenteric cysts so far has, in a very few cases, if ever, been correctly made preoperatively.

In the future the probability is that mesenteric cysts will be more often borne in mind because of the recent number reported in literature.

The following symptoms, if borne in mind, would aid in considering a diagnosis of mesenteric cyst.

- 1. Movable tumor, that, is only slightly painful.
- 2. Normal or low blood count in the absence of obstruction symptoms and inflammation.
- 3. Vomiting.
- 4. Tympanitic areas in close proximity to dull areas.
- 5. History of abdominal trauma previous to finding abdominal tumors.
- 6. Pain of mild or severe obstructive character increasing in attacks at varying intervals in absence of acute inflammation.
- 7. Diarrhea alternating with constipation accompanying the above symptoms.
- 8. X-Ray examination showing narrowing of lumen of gut that is in relation to the tumor mass.

#### **PROGNOSIS**

If operative symptoms appear early and the cyst is removed the mortality is not high, but unfortunately in a great percentage of cases operation is done late, after obstruction symptoms have developed and dehydrated the patient or further advanced than that even, necrosis and gangrene having occurred.

Vance states that the operative mortality is 41 per cent of the 27 cases collected by him.

Wilensky stated that when resection must be done, of course the mortality percentages are increased and should be done only when a more conservative operation is impossible.

Other authors give a mortality of about 35 per cent.

#### COMPLICATIONS

1. Intestinal obstruction in about 50 per cent.

- 2. Adhesions.
- 3. Intussusception from hyperperistal sis.
- 4. Hemorrhage into the cyst.
- 5. Peritonitis as a sequellae.
- 6. Torsion of cyst and volvulus.
- 7. Impaction in pelvis.
- 8. Dilatation of stomach.
- 9. Intestinal paresis.

#### TREATMENT

Of course, in any acute abdominal condition the treatment is surgical.

The treatment can be classified concisely under five headings:

- 1. Aspiration.
- 2. Marsupialization.
- 3. Incision and drainage.
- 4. Enucleation.
- 5. Resection if the circulation in the bowel has been damaged sufficiently.

Usually enucleation or resection is the operation of choice if seen comparatively early.

Aspiration and marsupialization are obsolete, except in very severe cases, the former giving 50 per cent recurrences, while the latter possibly more cures.

Incision and drainage is done only when operated late or when the cyst is of enormous size, and when enucleation or resection are not the conservative thing.

#### CASE REPORTS

J. R. D., male, age 5, white, was referred to me by Dr. P. H. Mayginnis on July 11, 1927, at 5 P. M., and brought to Morning-side Hospital. The past history was negative as far as major diseases were concerned. No history of injury could be procured from the mother. Parents living and well.

The boy was well up to six days previous to admission to the hospital, when in the afternoon he began to vomit from no apparent cause. The vomiting continued, consisting of varying quantities without retained intake whatsoever until admission to the hospital.

On Thursday, the second day after onset the mother stated that the baby's bowels moved, but no more. The physician was called, a few hours previous to admission, who made a diagnosis of intestinal obstruction.

Examination showed a considerably emaciated, dehydrated boy, vomiting at in-

tervals. The head, neck and chest showed no gross pathology. The abdomen was only moderately distended, soft and not tender except just to the right of the umbilicus. The skin gave a doughy feeling but this was attributed to dehydration. No definite mass could be found by palpation or percussion.

Rectal examination showed some very slight resistance on about a level with the prominence of the sacrum but not suggestive enough to diagnose tumor. The temperature on admission was 99.4, pulse 120.

Blood picture W.B.C. 36,600, 94 per cent polys, S.L. 4 per cent, large L. 2 per cent. Haemoglobin not reported, nor R.B.C., urine negative.

This high count was probably due to dehydration.

Since high enemas only got a small amount of gas, and the vomiting continued it was deemed advisable to open the abdomen.

The abdomen was opened at 10:30 the next morning after admission with a midline incision from the umbilicus to the symphisis; there was only a small amount of hemorrhage due to dehydration.

Upon opening the abdomen about two ounces of slightly milky pus-like fluid flowed out. Since no inflamed areas could be found it was considered of lymphogenous origin due to the obstruction of the lacteals.

Just above and slightly to the right of the promintory of the sacrum were found two orange sized, unilocular cysts, about 10 inches from the terminal illeum. These cysts were connected by a patulous stem making them very freely communicable. Pressure made on one would increase the size of the other proportionately.

This stem passed through the mesentery of the illeum at right angles. The two globular masses were adhered to the illeum laterally, leaving a strip of peritoneum on its antimesentric borders about threefourth inches wide.

One cyst was punctured and found to contain a clear straw-colored fluid with numerous cholesterin appearing crystals. It was dissected from the illeum, followed by a like procedure of the other and the stem removed from the mesentery.

Resection was not deemed necessary or advisable; first, because of the circulation of the gut being only slightly impaired and second because the general condition of the patient was not good.

One denuded surface was peritonealized so as not to encroach on the lumen of the gut and the other was covered by a piece of omentum.

The abdomen was closed in layers after placing a soft rubber tube drain in the site of operation.

The distended bowel above the cystic mass then distributed its contents into the collapsed bowel below. The obstruction had been only partial and some gas had been getting by when hyperperistalsis would take place.

The cysts had undoubtedly arisen from the mesentery and were of the serous type.

The patient went back to bed in fair condition.

The bowels moved the next 24 hours with the aid of enemas. Feces and a considerable amount of gas were passed. This continued daily. Vomiting continued consisting of a bile stained stomach content. Percussion showed a dilated stomach which was washed out by soda solution occasionally. These complications continued and the patient died on the eighth day after admission.

Pathological report of the Terrill's laboratory, shows the wall of the cyst to be composed of loosely woven connective tissue fibers with an occasional accumulation of small round cells.

Autopsy was done by Dr. P. H. Mayginnis and the report is as follows:

Through a mid-line incision the abdomen was completely opened; the site of operation was healed, the omentum was fastened. The gut was normal color on either side of the site of operation. Fluid and gas could be expressed through the lumen at the site of operation. The only other pathology found was an immensely dilated stomach, all other organs apparently normal.

Cause of death: acute dilitation of the stomach and dehydration.

#### CONCLUSIONS:

- 1. Mesenteric cysts are comparatively rare.
- 2. All cases that are found should be reported so a more concise clinical picture could be formulated.

- 3. Cases should be reported regardless of outcome so mortality per cent could be ascertained.
- 4. Mesenteric cysts should be borne in mind when abdominal conditions present themselves for differential diagnosis.

# SURGICAL REPAIR OF THE

# J. E. WALLACE, M.D. TULSA

The ileocecal valve is not a new discovery. It was first described by Vidius in 1557. Bauhinus, of the famous medical school of Padua, after whom the valve has been named, published a description of the valve of which he supposed himself to be the first discoverer in 1579. Debierre studied the action of the valve by the ingenious method of a glass window in the cecum in 1885. Max Hert, of Vienna, made an extensive study of the structures of the valve and its functions in 1897.

Cannon, Keith and Elliott in recent years made further studies of the structures and the function of the ileocecal valve which have shown it to be a distinct anatomical entity with a function of high importance not only to the digestive process but to the general welfare of the body. The development of the X-ray method of examining the various parts of the alimentary canal after a bismuth meal, has made possible a more minute and systematic study of the function of the valve in human beings.

First, it is necessary to briefly consider the structure of the normal valve. Cunningham gives the following excellent description of the ileocecal valve as found in human beings:

"Where the ileum enters the large intestine the end of the small gut is, as it were, thrust through the wall of the large bowel, carrying with it certain layers of that wall, which project into the cecum in the form of two folds, lying respectively above and below its orifice, and constituting the two segments of the ileocecal valve. The condition may be compared to a partial inversion or telescoping of the small into the large intestine; it must be added that the peritoneum and the longitudinal muscular fibers of the bowel take no part in this infolding; on the contrary, they are stretched tightly across the crease pro-

duced on the exterior by the inversion, and thus serve to preserve the fold and the formation of the valve.

"Each segment of the valve is formed of an infolding of all the coats of the gut, except the peritoneum and the longitudinal muscular fibers, and consequently it consists of the two layers of mucous membrane, with the submucosa and the circular muscular fibers between, all of which are continuous with those of the ileum on

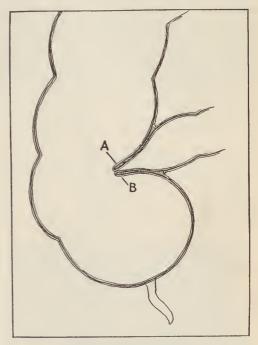


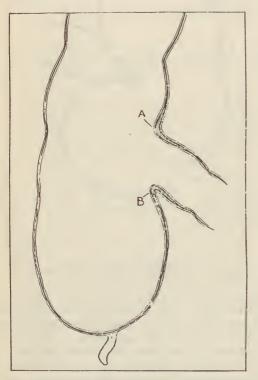
Diagram showing structure of ileocecal valve, intussusception of small intestine forming anterior and posterior lips, A, B.

the one hand and of the large intestine on the other. The surface of each segment turned toward the small intestine is covered with villi, and conforms in the structure of its mucous membrane to that of the ileum; while the mucous membrane of the oposite side resembles the mucous coats of the large bowel.

"There is little doubt, as pointed out by Symington, that the efficiency of the ileocecal valve is largely due to the oblique manner in which the ileum enters or invaginates the cecum; this oblique passage alone, as in the case of the ureter piercing the wall of the bladder, would probably be sufficient to prevent a return of the cecal contents.

"That the function of the ileoceal valve is an important one is evidenced by the presence of this structure in practically all vertebrate animals. The alimentary canal

of every vertebrate is divided into three parts, the fore gut, the mid gut and the end gut. The fore gut receives the food and prepares it for digestion. The mid gut digests the food and absorbs the usuable portion of the ingesta, while the end gut dries out the unusable residues which are thrown into it and then discharges them from the body. The mid gut is the great organ of digestion and absorption. It is the feeding place of the body. Practically no liquids are absorbed from the stomach, while the mid gut, the small intestine, absorbs in the average man not less than five or six quarts of liquid daily. On the other hand, the colon absorbs little. The colon serves as a place for the temporary storage of unusable residues and waste products.



Completely incompetent ileocecal valve, both lips destroyed by over-stretching of the gut.

which, under the favoring conditions of warmth and moisture quickly undergo putrefaction. As protection against absorption of these waste and poisonous substances, the colon, with the exception of the cecum, is supplied with very few absorbent vessels, and, in addition, nature has wisely provided this fifth receptacle with a valve at each end. The lower valve prevents the untimely escape of the colon contents, while the upper valve prevents the backing up of putrefying and poisonous materials into the small intestine, that portion of the

bowel in which absorption takes place with the greatest rapidity.

"The ileoceal valve is essential to the forward movement of the intestinal contents. The small intestine and colon act independently of each other. The colon has a double action, as Cannon has shown in animals, and Case in human beings. In the transverse colon there is a point at which peristaltic waves passing in opposite directions are generated. From this point the so-called anti-peristaltic waves travel toward the cecum. The purpose of this reverse action is to detain the fluid matters which come down from the ileum in the cecum and the ascending coln for a sufficient length of time to permit the absorption of a considerable part of the water which they contain. When the ileoceal valve is incompetent, this reverse peristaltic activity not only holds the gas and liquid in the cecum but forces it back into the ileum so that the ileum and the cecum becomes a common cavity. The cecum is prepared to act thus as a reservoir but the ileum is not. When the valve is intact, the ileum pushes its contents through into the cecum, little by little, in the intervals between the antiperistaltic waves. During the back pressure produced by the reverse peristalsis, the ileocecal valve mechanically closes and protects the ileum against the reflux of fecal matter; thus there is steadily maintained an intermittent movement of material from the small intestine into the colon, whereby the small intestine is normally emptied in eight to ten hours.

"When the valve is incompetent, material is often found in the small intestine twenty-four hours or even longer after ingestion.

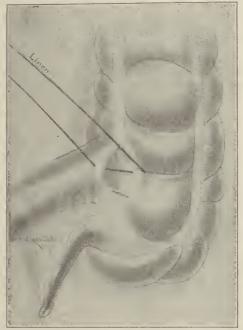
"Case has shown by X-ray that material which, during the activity of the small intestine following the taking of food has been completely carried over into the colon, and twenty-four hours later, may be found to have returned to the ileum, filling several feet of the small gut, thus showing a very definite and often very prolonged ileal stasis.

"The valve may be deformed or destroyed by a tubercular disease or by simple ulceration. I believe, however, that destruction of the lips of the valve by long overstretching of the gut from chronic constipation, is by far the most common cause of incompetency. The position of the valve opening, lying as it does crosswise of the gut, renders it specially liable to damage

by stretching of the colon and cecum in the long axis of the gut.

According to Schmidt and Adami, indol, one of the most constant products of putrefaction in the colon, is not found in the small intestine under normal conditions.

"Ewald, Menche and Jakowski showed that in cases of a fistulous small intestine it was impossible to find even traces of



First step in repair of incompetent ileocecal valve. Suture placed to restore posterior lip.

putrefaction products such as phenol, skatol and indol. From this fact it may be inferred that the ileocecal valve is normally gastight as well as water-tight.

"I am fully persuaded that the mechanical action of the ileocecal valve in preventing a reflux of the putrefying and dangerous fecal materials found in the colon into the small intestine is of sufficient importance to demand surgical interference."

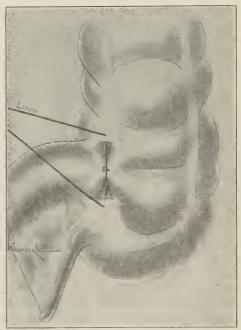
In a series of 138 cases of abdominal section, in which the roentgen examination was made by the aid of bismuth or barium meal had proved marked ileal stasis, the most careful scrutiny of the terminal ileum in each case showed the presence of adhesions of Lane's kink in 39 cases, or in other words ileal stasis was associated with incompetency of the ileoceal valve alone seventeen times as often as it was found associated with adhesions of the terminal ileum or Lane's kink.

A very definite proof that incompetency of the ileoceal valve is the dominant cause of ileal stasis is found in the fact that after repair of the valve, ileal stasis is cured, in cases in which adhesions of the terminal ileum have been found and have been left undisturbed.

#### SYMPTOMS

Persistent intestinal flatulence. Symptoms of chronic appendicitis with no history of acute, and chronic symptoms persisting after the appendix has been removed. Nausea, faintness and the sense of exhaustion following a large enema. The patient suffers constantly from a very pronounced intestinal toxemia, and usually has learned from experience that little or no relief is afforded by the enema and only temporary relief by laxatives, a long list of which has usually been tried, with the result of making the patient in the end worse than at first because of the intense colitis produced by the long use of intestinal irritants.

The cause of the symptoms is not the kink, is clearly shown by the fact that the kink is far more often absent than present with the above symptoms. The symptoms are, it is true, present when the terminal ileum is adherent, however, not as a con-



Second suture placed to approximate ends of torn habenula.

sequence of the kink, but as a result of the ileocecal valve incompetency to which the kink itself is due.

#### DIAGNOSIS

Palpation shows in pronounced cases of incompetency a greatly enlarged, gas-dis-

tended and prolapsed cecum, the socalled pelvic cecum. The almost constant presence of indican in the urine. Nausea, faintness and sense of exhaustion following a large enema, and passage of bismuth from the colon into the small intestine in the bismuth enema as shown by X-ray examination.

#### DIAGNOSIS AFTER OPENING THE ABDOMEN

By rotating the colon outward, it will be seen that a narrow muscular band passes just behind the ilecolic junction. This has been called by German anatomists the habenula. This band is generally so stretched and atenuated as to be scarcely perceptible. When present, as in a perfectly normal colon, it serves to pucker the gut, forming several small haustra, which infold the end of the ileum, and carry into the lumen of the colon the point of junction between the ileum and the corresponding structures of the colon. A division or stretching of this band causes an unfolding of the intestine and more or less complete disappearance of the haustra contiguous to the ileocolic junction and damage to the ileocecal valve, which may be thereby rendered partially or completely incompetent. If the peritoneum and outer muscular layer are stretched or divided at the ileocolic junction, the ileum may be pulled out of the large gut and the valves disappear, leaving a large funnel-shaped opening instead of a buttonhole opening guarded by overlapping lips. In these cases the form of the colon is changed. The curve of the lower portion of the gut is lost. The haustra contiguous to the ilecocolic junction has disappeared, and evidence of incompetency may be easily obtained by making the gas and liquid present in the cecum pass back into the ileum by the application of slight pressure. By compressing the ascending colon and then making light pressure upon the cecum, the ileum, previously emptied, will be instantly distended. The movement of gas or liquid from the colon into the ileum may be accompanied by a slight sound, or when the opening is very large, no sound may be heard. By this simple method the competency of the ileoceal valve may be tested at any time when the abdomen is open. Every abdominal surgeon frequently encounters a very annoying gaseous distention of the small intestine, a condition which frequently adds to the difficulties of the operation, and in no small degree increases the hazard of the operation. Examination of the ileoceal valve in such cases will almost invariably show the characteristic pulled out and conical appearance of the gut at the ileocolic junction with the colon. When the valve is competent the intestine is found practically empty, for when food is introduced into the small intestine, the gut continues active until its contents have been completely emptied into the colon. The time required for the disposition of an ordinary meal is eight to nine hours. When the valve is incompetent it is impossible for the intestine to empty itself for the reason as stated that gases and sometimes liquids are forced back from the colon into the small intestine not only by the elasticity of the walls of the large gut but still more energetically by the reverse peristaltic activity normally present in the right half of colon.

#### OPERATION

In considering the question of operation upon the incompetent ileoceal valve, it is, first of all, important to recognize the fact that this lesion, while a direct cause of serious pathological conditions, is itself a result of other and long preceding morbid changes, is itself a result of other and long preceding morbid changes which must not be overlooked, and to which attention must be given, if any benefit is to be obtained from the surgical attention to the ileocecal valve.

Incompetency of the ileocecal valve is, in fact, only one link in a long chain of pathological changes of which the beginning is constipation from errors in diet and neglect to evacuate the colon. Accumulation of putrefying fecal matters in the pelvis and descending colon causes distention of the colon and colitis. Colitis produces a spastic state of the gut with obstruction and more distention. Later come pericolitis and adhesions of the prolapsed pelvic colon, with more obstruction and extension of colitis with increased distension of the gut, and especially of the cecum as the result of exaggerated anti-peristalsis. Finally, the stretching of the cecum becomes so great that the structures which support the ileoceal valve give way. The lumen of the ileocolic junction becomes greatly widened and the valve is rendered incompetent.

After incompetency of the valve is established, another series of pathological changes appears, among which are ileal stasis, adhesions of the terminal ileum, the so-called Lane's kink, chronic enteritis, atrophy of the small intestine from degeneration of its glandular and muscular struc-

tures, and a long list of other lesions, due to the ascending infection which naturally results from the presence of virulent fecal matter in the mid gut.

The operation for repair of the valve is exceedingly simple in principle, but requires delicate manipulation and careful technique in execution. If the operation is overdone, most serious injury may result, as an obstruction may be produced by which the patient's life might be imperiled.

The principle of the operation is simply restoration of the valve by invaginating into the colon of a short section of the terminal ileum. The idea is so simple it is difficult to understand why it was not long ago put into practical execution. The probable reason is the lack of appreciation of the importance of the function of this part of the human anatomy.

In many cases the repair of the valve is an exceedingly simple matter, but in not a few cases various difficulties are met. The most notable and the most frequently encountered is the difficulty of exactly locating the ileocolic junction. It must be remembered that the real junction of the ileum and the colon is at the inner border of the valve lips. When the ileum is disinvaginated and the valve incompetent, the line of junction may be clearly distinguished and must be carefully located to make the operation effective. In the normal subject the valve consists of two folds placed in such relation to the large gut that the slit-like opening between the valve runs tranversely. The idea of the operation is to restore these folds by invagination of the gut the operation involves both sides; that is, the upper and lower side of the

With the cecum and a few inches of the ileum drawn out through the incision and properly disposed, it is usually easy to see the junction where the ileum merges into the colon at the anterior face of the gut, close to the upper side of the nonvascular fold of Treves. From this point the junction may be easily traced for two or three centimeters along the upper border of the ileocolic opening; but beyond this point it usually is obscured by a plexus of tortuous veins which are sometimes buried in a considerable mass of fat. The inner half of the upper border of the junction is almost always completely concealed. In cases in which the ileum is well pulled out, the lower half of the junction, beginning at the lower side of the nonvascular fold of Tre-

ves, comes fully into view as soon as the non-vascular fold, which usually carries a considerable amount of fat, is lifted and turned upward. Not infrequently, however, the fold of Treves is fixed by adhesions in such a way as to completely conceal the lower half of the junction. Sometimes also the appendix or its mesentery is adherent in such a way as to conceal the junction. It may easily be concealed by bands formed between the cecum or appendix or a fold of the ileum itself when drawn down by adhesions to the valve. Before the repair of the valve can be undertaken, the junction must be brought clearly into view by the careful separation of adhesions.

In nearly every case of incompetency of the ileocecal valve the upper or superior valve will be found deficient while the lower valve is not infrequently found to be intact, as shown by the fact that the ileum is not disinvaginated at this point. For this reason it is best to begin the operation at the inner end of the upper segment of the ileocolic junction.

### THE TECHNIQUE OF THE OPERATION

A fine needle should be used, a Lane's cleft palate needle is best for the purpose, and the needle should be inserted through the seromuscular coats of the colon and ileum about half a cm. from the line of junction between the two. The suture is then tied. Next a suture is passed through the separated ends of the ruptured habenula. When this suture is tied the opening will be narrowed and the intussusception of the gut will be restored. The operation may be done with a single linen or silk suture. Firm adhesions of the surfaces thus brought together is secured by abrading the peritoneum or painting it with tincture of jodine.

Another operation I think should be done at the same time (and which I will not take time now to describe), is plication of the cecum.

After practice it is easy to distinguish the colon from the ileum by its lighter color. In cases in which only the superior valve is found to be pulled out, the operation consists of restoring the superior valve only. In many cases, however, it is necessary to restore the inferior valve as well as the superior. The suture must be introduced in such a way as to constrict the ileocolic opening as well as to infold the end of the gut. The suture when inserted sometimes has the form of a square;

sometimes the shape of an inverted V, and sometimes the form of a letter W. One soon learns by experiments the best form of suture to apply to suit the conditions found in an individual case. In cases in which the ileocolic junction is very widely dilated a very considerable degree of constriction is required to make the repair effective. From time to time during the operation the condition of the valve must be tested by an effort to force gas from the colon into the small intestine. It is also important before concluding the operation to test the ease with which the gas may be made to pass from the small intestine into the colon. The constriction must not be so great as to cause any degree of resistance to the passage of gas from the small in-

These cases require careful watching after operation and an early movement of the bowles is important.

#### THE AFTER TREATMENT

The after treatment consists of the Sinusoidal Electric current over the bowels, to restore the muscular tone and nerve sensations, together with flaxseeds, mineral oils, agar-agar, cascara, phenothalien, proper diet and exercise.

### NITROBENZOL (OIL OF MERBANE) POISONING

W. V. PRUETT, M.D.—E. E. BAUM, M.D. TULSA

#### CASE REPORTS

Patient H. G., age 33, laundry employee, complained of common cold and cough.

He procured a bottle of cough syrup from his local drug store, and left it in his work shop during the day.

Some time during his absence from his work shop another employee needed a bottle and poured out cough syrup, replacing it with a cleaning mixture 9 parts phenol and one part "merbane" (nitrobenzol). This mixture was used in removing stains from clothing.

About 4 P. M., December 3, 1928, he was seized with paroxysm of coughing and inadvertently picked up what he thought to be his bottle of cough syrup and swallowed a large mouthful. He stated that he noticd a more marked burning sensation than usual and took a second mouthful. (This bottle was approximately a 3-ounce bottle).

He immediately began to feel severe gastric pains. He went across the street and drank a quart of milk. Returning to the laundry he immediately collapsed, and an ambulance was summoned and the patient removed to Morningside Hospital, where first aid of gastic lavage, alcohol, egg and albumin were administered.

Patient was admitted to hospital, about thirty minutes later the nurse summoned the interne, and informed him that the patient was dying.

At this time the patient was deeply cyanotic, and oxygen inhalations were administred without relieving the cyanosis; 500 cc. normal saline solution was given without any apparent results. Consultation was held and an exsanguine transfusion was decided upon. (Exsanguino transfusion bleeding out of one arm and replacing amount withdrawn into the other arm). A satisfactory donor was found among friends who were present.

Approximately 500 cc. of blood was withdrawn into 5 percent sodium citrate solution and an equal quantity withdrawn from patient.

During the transfusion it was noticed that the patient's blood was a deep wine color, coagulating quickly into a jelly-like mass — coagulating almost immediately when it fell into the cup.

In our opinion this observation was responsible for saving this patient's life, and it was decided to follow the transfusion with another 1000 cc. normal saline solution and another 500 cc. of 4.5 per cent sodium citrate was administered to lower the viscosity and the coagulability of the blood.

According to Sollman, the fatal dose of nitro benzol is 1 gram. In our opinion, we believe this patient received approximately three times this fatal dose.

During the next 12 hours the cyanosis cleared, the patient was rational and requested permission to smoke.

He complained only of a very sore throat and mouth. Examination at this time revealed his mouth and pharynx to be badly burned by phenol.

The patient made an uneventful recovery and has resumed his work.

The laboratory findings were:

Slight trace of sugar, also albumen.

On the morning of the 4th:
R.B.C. 3,780,000.
Hemoglobin 62 per cent.
W.B.C. 12,700.
Polymorph 76 per cent.
Monouclear 9 per cent.
Lymphocytes 15 per cent.

On the 7th:

W.B.C. had come down 9,200. Polymorph 58. Lymphocytes 25. Monouclear 14. Eosinophils 3.

Discharged on the 9th, the blood counts were normal. Still had a trace of albumen that cleared up in a short time.

This patient was seen by Dr. Baum and myself.

I have found in medical literature that there are a number of cases on record where employers in factories have had this poisoning from absorption of shoe dyes and have recovered, but to the best of my knowledge this is the only recorded case where this poison has been swallowed and the patient recovered.

#### CONCLUSIONS:

- 1. Patient swallowed approximately three times the fatal dose of nitrobenzol.
- 2. Nitrobenzol increases the viscosity and lowers the coagulation time of the blood.
- 3. Nitrobenzol unites with the haemoglobin of the red blood cell much in the same manner as carbon monoxide.
- 4. Exsanguino transfusion helps to remove excess nitrobenzol from blood stream thus avoiding its chemical union with the transfused blood.
- 5. Sodium citrate solution 4.5 per cent and normal saline should follow transfusion to lower viscosity and increase coagulation time.

#### —o— LIFE

Born of love and hope, of ecstasy and pain, of agony and fear, of tears and joy—dowered with the wealth of two united hearts—held in happy arms, with lips upon life's drifted font, blue-veined and fair, where perfect peace finds perfect form—rocked by willing feet and wooed to shadowy shores of sleep by siren mother singing soft and low—looking with wonder's wide and startled eyes at common things of life and day—taught by want and wish and contact with the things that touch the dimpled flesh of babes—lured by light and flame, and charmed by color's wondrous robes—learning the use of hands and feet, and by the love of mimicry beguiled to utter speech—re-

leasing prisoned thoughts from crabbed and curious marks on soiled and tattered leaves—puzzling the brain with crooked numbers and their changing, tangled worth—and so through years of alternating day and night, until the captive grows familiar with the chains and walls and limitations of a life.

And, time runs on in sun and shade, until the one of all the world is wooed and won, and all the lore of love is taught and learned again. Again a home is built with the fair chamber wherein faint dreams, like cool and shadowy vales, divide the billowed hours of love. Again the miracle of a birth—the pain and joy, the kiss of welcome and the cradle-song drowning the drowsy prattle of a babe.

And, then the sense of obligation and of wrong—pity for those who toil and weep—tears for the imprisoned and despised—love for the generous dead, and in the heart the rapture of a high resolve.

And, then ambition, with its lust of pelf and place and power, longing to put upon its breast distinction's worthless badge. Then keener thoughts of men, and eyes that see behind the smiling mask of craft—flattered no more by the obsequious cringe of gain and greed—knowing the uselessness of hoarded gold—of honor bought from those who charge the usury of self-respect—of power that only bends the coward's knees and forces from the lips of fear the lies of praise. Knowing at last the unstudied gesture of esteem, the reverent eyes made rich with honest thought, and holding high above all other things—high as hope's great throbbing star above the darkness of the dead—the love of wife and child and friend.

Then locks of gray and growing love of other days and half-remembered things—then holding withered hands of those who first held his, while over dim and loving eyes death softly presses down the lids of rest.

And so, locking in marriage vows his children's hands and crossing others on the breast of peace, with daughter's babes upon his knees, the white hair mingling with the gold, he journeys on from day to day to that horizon where the dusk is waiting for the night. At last, sitting by the holy hearth of home as evening's embers change from red to gray, he falls asleep within the arms of her he worshiped and adored, feeling upon his pallid lips love's last and holiest kiss.—Pagan Bob.

#### INFLUENZA HANGS ON

While the influenza epidemic, which had its start on the Pacific Coast and swept eastward, has been characterized as "mild" by health authorities, many serious complications have followed in its path. Deaths from pneumonia have exceeded previous years and severe colds have persisted even after the epidemic had apparently been checked.

In this emergency physicians report excellent results from the use of Abbott remedies. Among the most widely used are Calcidin, Ephedrine, Ephedrine Butesin Spray, Metaphedrin, M. Catarrhalis Combined Bacterin, Metaphen, Neonal, Sodoxylin and Abbott's Saline Laxative.

A special Influenza circular has been prepared by the Abbott Laboratories, North Chicago. Ill., which will be sent on request.

## THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or eompounds unapproved by the Council on Pharmacy of the A. M. A., will not be aeeepted.

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#### EDITORIAL

#### TULSA HOSPITALS

The city of Tulsa has probably grown to its present proportions faster than any city known to modern times. A little more than fifteen years ago Tulsa was proudly claiming it was a city of 7,500 people. Today it is difficult to estimate what their population really is, but it is probably in the neighborhood of between 140,000 and 160,000 people, with no let-up in its growth. Naturally everything expands as the city expands. Their hospitals, as far as is possible, have kept pace with the phenomenal growth of the city. This is indeed a difficult thing in accomplishment, for hospitals, it is well known, are usually

the last great public benefits to be erected.

Oklahoma Hospital. The first hospital in Tulsa was organized by Doctors Fred S. Clinton, J. C. W. Bland, C. L. Reeder and their associates, twenty-three years ago. For years this hospital served the Tulsa public and most of the time it was crowded to more than capacity. From this nucleus Dr. Clinton and Mrs. H. C. C. Ziegeler were able to finance and have erected the present Oklahoma Hospital, which was completed, equipped, ready for occupancy, and opened to the public in August, 1916. The hospital now has departments of X-Ray, physiotherapy, laboratories, modern operating rooms and sterilizing equipment. The normal capacity is 52 beds, but this is expansible to 90 beds in emergency. In June, 1928, the institution was rechartered and is now operated as a Masonic institution. Plans are now in formation for an extensive program of expansion.

St. John's Hospital. The first spade of dirt for the erection of St. John's Hospital was moved by General John J. Pershing in February, 1921. The great national financial depression of about that time halted the building of St. John's so that it was not completed and opened to the public until February, 1926. For a long time the concrete super-structure remained unfinished—until the Sisters of the Sorrowful Mother, in 1923, agreed to spend \$350,000 in enclosing the structure and finishing a part of it if Tulsa citizens would assist. In October, 1925, a campaign was inaugurated and more than \$500,000 was pledged, most of which was collected and used to finish the building into one of the most complete hospitals of the Southwest. During the year ending January, 1929, 5,183 patients were admitted. Its laboratories are very complete. The medical, surgical, pediatrics, obstetrics, X-Ray and emergency departments are closely cooperated. The institution holds the approval of the Americal College of Surgeons. The hospital school for nurses is very complete and a home for nurses will soon be erected. Physicians on the Board of Governors are: Doctors Samuel Goodman, D. M. MacDonald, F. A. Glass, W. G. Lemmon and P. N. Charbonnet, ex-officio. The staff is very large and covers every department of medicine and surgery. The officers being: Doctors P. N. Charbonnet, president; Wade Sisler, vice-president; C. T. Hendershot, secretary.

Morningside Hospital, as an organization has been in existence since 1918, when it was organized by Mrs. D. I. Brown, now Mrs. D. I. McNulty. Starting on the north side with a capacity of 25 beds, it has grown into architecturally, artistically, medically and surgically, one of the most modern and up-to-date hospitals in the South. It has a capacity of 225 beds. The modern innovations in this hospital must be seen to be appreciated. There is nothing of the routine appearance of a hospital about the institution. The coloring, tints and furnishings of the institution are beautiful indeed. The surgical department has two major operation rooms, rooms for plaster work, cystoscopic room and two minor rooms. Sterilizing apparatus is the most modern obtainable. Surgery is isolated, as is the obstetrical work, one floor being used exclusively for that purpose. More than 150 physicians patronize this hospital. It is fully standardized by the Americal College of Surgeons. The nurses' training school has an enrollment of 75 nurses, is fully accredited by the State Board and carries a full three-year course of training with a degree of Registered Nurse. The present building is entirely new, equipment is completely new, from the tile kitchen to the Solarium on the 6th floor. A nurses' home is already planned for the near future.

The Hospital for Bone and Joint Diseases is a new institution recently opened and devoted to the diagnosis of bone and joint diseases, fractures and allied conditions. It is under the direct supervision of Doctors Wade Sisler, J. E. MacDonald and W. J. Feehan, who are orthopaedists in charge. The hospital has a maximum capacity of 40 patients. The work includes orthopaedic surgery in its entirety. The physiotherapy department includes the electrotherapy, hydrotherapy, medical gymnastics, and even a special swimming pool for children. Heliotherapy is also available.

All together it will be observed that Tulsa is fully abreast of modern times and accomplishments so far as hospitals are concerned and the short time it has had to reach its advanced position.

### STATE MEDICAL SOCIETY

The Oklahoma State Medical Society is an integral part of organized medicine founded for the advancement of its members and as a protection to the laity against unscrupulous, designing and unethical physicians. Before a physician can become a member of the State Society, he must of necessity be passed by the Board of Censors, of the respective County Society, and then elected to membership by its members, whereupon he automatically becomes a member of the state society and the national organization. Thus the qualifications, both morally and scientifically, are known by his most intimate confreres and given sanction to participate in the priviledges and benefits to be gained by such an organization.

The State organization looks to the better educational and social advancement of its members by publishing a creditable journal and having a scientific meeting each year as an emporium where there is given a feast of reason and a flow of soul, where every one is allowed to participate in reading of papers and discussions and go back to his clientele a bigger and better man made so by the contact.

A man that does not take advantage of such opportunities stagnates and suffers from dry rot so that his more enterprising brother makes disastrous inroads on his business and he is soon relegated to an inferior position in his community.

Osler was the most consistent attendant of medical societies of any man in modern times. Neither press of business, ill health, or any of the multitudinous excuses which are so frequently offered ever deterred him from attendance and he always learned something, he always gave some enthusiasm to those who were fortunate enough to go and he counted it quite a privilege to meet and discuss the many problems. This was one of the elements in making Osler a great man.

The Oklahoma State Medical Society offers you this year a rare opportunity for enhancement of knowledge, a postgraduate work of exceptional merit, a rest from the routine grind and drudgery, a social oasis by again seeing and meeting the fine class of men who are enrolled in our State Society.—Lea. A. Riley.

### Editorial Notes - Personal and General

STEPHENS COUNTY MEDICAL SOCIETY were guests of Drs. C. P. Chumley and E. B. Thomasson recently, at a luncheon. Drs. W. J. Wallace and L. M. Sackett, Oklahoma City, were the principal speakers of the occasion. Dr. Wallace read a paper on "Symptoms of Urinary Obstruction" and Dr. Sackett gave a lecture on "Carcinoma of the Cervix."

ADAIR COUNTY MEDICAL SOCIETY met in Westville March 6, the guests of Dr R. L. Sellers.

DR. M. SHADID, Elk City, is taking post graduate work in New York, specializing in X-ray and radium work.

DR. W. P. FITE, Muskogee, attended a meeting of the Southern Association of Clinical Surgeons in New York the last of March.

LOGAN COUNTY MEDICAL SOCIETY met March 26, at Guthrie, for their monthly meeting. Talks were made by Dr. C. S. Branson of Coyle, Dr. C. B. Hill and Dr. L. H. Ritzhaupt of Guthrie.

LINCOLN COUNTY MEDICAL SOCIETY met at Chandler March 7. Papers were read by Drs. J. M. Byrum, Shawnee, and W. P. Cottrell, Chandler.

GARFIELD COUNTY MEDICAL SOCIETY elected the following officers for 1929. President, Dr. A. L. McInnis; Secretary-Treasurer, Dr. John R. Walker.

BRYAN COUNTY MEDICAL SOCIETY were the guests of Dr. and Mrs. H. B. Fuston at a turkey banquet at the Masonic Hall, Bokchito, March 12.

KAY COUNTY MEDICAL SOCIETY met March 21, at Tonkawa. Dr. C. W. Arrendell gave a paper on "Epidemic Meningitis." A round table discussion of the subject followed.

GARFIELD COUNTY MEDICAL SOCIETY'S annual Guest Day will be April 15. On the program are the following: Drs. David Barr, St. Louis; C. C. Dennie, Kansas City; S. J. Burrows. Chicago, and Wade Sisler, Tulsa.

OKMULGEE - OKFUSKEE COUNTY MEDICAL SOCIETY met at Weleetka March 18 for their bi-monthly meeting. Addresses by Drs. M. S. Gregory and A. L. Solomon, Oklahoma City, occupied the chief place in the evening's entertainment.

CANADIAN COUNTY MEDICAL SOCIETY met in El Reno March 8. Dr. Balyeat, Oklahoma City, was the principal speaker of the evening. His topic was "Hay Fever and Asthma." Dr. Balyeat demonstrated his lecture by stereoptican slides.

MUSKOGEE COUNTY MEDICAL SOCIETY met March 25. Dr. Fred J. Wilkiemeyer reported a case of cancer of the stomach, Dr. A. L. Stocks read a paper on the X-Ray Treatment of Exophthalmic Goiter. This paper elicited considerable discussion.

DR. and MRS. DAVID AUTREY, Marietta, spent the month of March in the East. After attending the inauguration of President Hoover, traveled to Boston and Battle Creek where Dr. Autrey did some special work in diabetes, pediatries and dietetics.

OTTAWA COUNTY MEDICAL SOCIETY met at the Baptist Hospital in Miami, March 13. Dr. Wade Sisler, Tulsa, delivered an address on "Hip Fractures," the address being illustrated with lantern slides, as well as cases showing end results of treatment in ankylosed joints.

WOODS COUNTY MEDICAL SOCIETY were the guests of the physicians of Waynoka, March 26. Dr. S. N. Mayberry, Enid, reported a case on "Granuloma Inguinale." Dr. O. E. Templin. Alva, gave a report on "Carbon Monoxide Poisoning." Dr. Paul Champlin, Enid, gave a paper on "Diagnosis and Treatment of Gall Bladder Diseases."

CLEVELAND COUNTY MEDICAL SOCIETY met March 21, at Norman. Dr. W. H. Flesher, Oklahoma City, read a paper on "Early Influences Affecting the Growth of Teeth," and Dr. A. B. Walker, Norman, read a paper on "Relation of Oral Lesions to Systemic Diseases." Pictures were shown during both lectures.

TULSA COUNTY MEDICAL SOCIETY had a special meeting March 18, at which time the guests of the occasion were Drs. Burton Haseltine and A. W. LeForge, Chicago. They presented especially prepared papers, illustrated with slides on "Asthma—Its Causes and Treatment." The program was sponsored by Drs. D. W. and P. C. White who, prior to the meeting, entertained the guests and a number of physicians at the Tulsa Club.

MUSKOGEE COUNTY MEDICAL SOCIETY met March 4, presenting what is conceded to be one of the most interesting programs of its history. The entire meeting was devoted to the various phases of spinal anesthesia. The program evoked very general and pertinent discussion and was as follows: "Technic, Indications and Advantages of Spinal Anesthesia," Dr. Pat Fite; "Contraindications and Causes of Failure in Spinal Anesthesia," Dr. Floyd E. Warterfield; "Blood Pressure During and Following Spinal Anesthesia," Dr. C. V. Rice; General Discussion, Dr. F. W. Ewing and Dr. Brown Oldham

MUSKOGEE PHYSICIANS recently cooperated under the auspices of the Extension Department of the State University in organizing a course in surgical anatomy and cadaveric surgery. The course is given under the direction of Dr. J. C. Stephenson of the State University, who is head of the anatomy department. The class is composed of Drs. J. H. Laws, Broken Arrow; J. C. Alexander, Okmulgee; I. W. Bollinger, Henryetta, and the following doctors of Muskogee: H. T. Ballantine, F. W. Ewing, E. H. Fite, Pat Fite, A. L. Mobley, I. B. Oldham, Jr., J. G. Rafter, E. J. Rose, H. A. Scott, Claude A. Thompson, Chas. E. White, N. R. Holcombe, A. L. Gregory.

#### DOCTOR HORACE TAPLEY PRICE

Dr. Horace T. Price, Tulsa, specialist in the treatment of tuberculosis, died in his office in the Medical Arts Building, March 18, 1929, from a stroke of apoplexy.

18, 1929, from a stroke of apoplexy.

Born at St. John, New Brunswick, Canada, September 17, 1876. He moved to St. Louis, in 1880, where he graduated from the school of medicine of St. Louis University. He served his apprenticeship at St. John's Hospital, St. Louis. He was an instructor in medicine and medical clinics until he came to Tulsa to engage in general practice, in 1917.

Dr. Price was a charter member of the Kiwanis Club and was active in Masonic circles, being a member of the Oklahoma consistory, the consistory degree of Guthrie and of St. Louis Masonic organizations. He was a member of the board of directors of the National Tuberculosis Association and medical director of the Tulsa County Public Health Association. He was also a member of the Committee on Tuberculosis of the State Medical Association.

He is survived by his wife, two children, his father and one sister.

#### DOCTOR RUFUS JAY CRABILL

Dr. R. J. Crabill, pioneer physician of Allen, Oklahoma, died at the Holdenville Hospital, February 23, from internal injuries received from a fall

Dr. Crabill was born in Texas in 1861, and has been a resident of Allen and territory for many years.

He is survived by his wife and five children.

Dr. Crabill, prior to amalgamation of the Medical Societies of Oklahoma and Indian Territory, was for many years Secretary-Treasurer of the Indian Territory Medical Association

Funeal services were held at the Baptist Church, Allen, February 25, and remains interred in the Allen cemetery.

#### DOCTOR ALLEN JEFFERSON JETER

Dr. A. J. Jeter of Clinton, died in that city March 10, 1929, as a result of carcinoma of the colon. Born in Louisiana, February 14, 1862, he graduated from the Memphis Hospital Medical College in 1893. Practiced at Plano, Texas, until 1902, moved to Foss, Oklahoma, where he practiced until 1917, when he located at Clinton, where he conducted his work until a short time prior to his death.

Dr. Jeter enjoyed a large practice both at Foss and Clinton. He was also past-president of Custer County Medical Society.

#### DOCTOR JOHN CRAIG TAYLOR

Dr. John Uraig Taylor, a pioneer Oklahoma physician, of Chelsea, Oklahoma, died in the Baptist Hospital, Miami, Oklahoma, March 4, 1929, during an attack of pneumonia

Dr. Taylor was born at Columbus, Ky., December 28, 1872, was educated in the state of his birth, receiving the degree of Doctor of Medicine from the University of Kentucky, in 1927. Was registered in Indian Territory in 1898, where he has lived and practiced his profession until the time of his death.

Dr. Taylor is survived by his wife and three children. Dr. Taylor was a member of his County Society, Oklahoma State Medical Association, the American Medical Association, and a member of the American College of Physicians, a Methodist and a Mason.

Funeral and burial held at Chelsea, Oklahoma, March 7, 1929.

## RESOLUTIONS OF THE ROGERS COUNTY MEDICAL SOCIETY

WHEREAS, the hand of the Giver of all Life has again reached into our midst and has removed from among us one of our number, Dr. John Craig Taylor, Chelsea, Oklahoma, and

WHEREAS, in our counsels and deliberations his voice has ever been raised in the interests of those high ideals of the profession of his choosing, which he cherished, and

WHEREAS, we had come to know, cherish and love him.

THEREFORE, be it resolved by the Rogers County Medical Society that in the passing of Doctor Taylor, the medical profession, not only of Rogers County, but of Northeast Oklahoma, has lost one of its most studious and progressive members and the citizenship of the county one one of its cherished members.

BE IT FURTHER RESOLVED, that a copy of these resolutions be spread on the minute book of the Rogers County Medical Society, a copy mailed the family, a copy furnished the press, and to the Oklahoma State Medical Journal.

R. C. MELOY, M.D. W. S. MASON, M.D. W. F. HAYS, M.D

# LOCAL ANESTHESIA IN OPHTHALMIC SURGERY

Local anesthesia in ophthalmic surgery is discussed by C. S. O'Brien, Iowa City (Journal A. M. A., Jan. 7, 1928), in all its phases. He feels that local anesthesia is the safest, easiest, and altogether the best method in practically all ophthalmic operations in juveniles and adults. To perfect one's technic, and without this results will be unsatisfactory, it is necessary to make a study of the anatomy of the orbit and surrounding tissues. This is best done by actual dissection.

### CONDENSED PROGRAM

# THIRTY-SIXTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, MAY 27-28-29, 1929

#### MONDAY, MAY 27, 1929

(Morning)

9:00 Golf Tournament, throughout the day.

(Afternoon)

1:30 Oklahoma State Pediatric Association— School of Medicine Building.

2:00 Oklahoma Dermatological Association— School of Medicine Building.

3.00 Meeting of the Council, Huckins Hotel.

(Evening)

8:00 Meeting of the House of Delegates— Huckins Hotel.

#### TUESDAY, MAY 28, 1929

(Morning)

8:00 Meeting of the House of Delegates— School of Medicine Building.

8:30 to 12:00—Clinics (See clinical program)

(Afternoon)

12:15 to 1:00—Luncheon School of Medicine Building.

1:00 to 5:00—Section Meetings School of Medicine Building.

(Evening)

6:00 to 8.00—Dinners

Medical Fraternities, Huckins Hotel Oklahoma Dermatological Ass'n, Huckins Hotel Women Physicians' Dinner, Oklahoma Club Officers Reserve Dinner, Oklahoma Club

8:15 Opening Meeting—Convention Hall, Mezzanine Floor, Huckins Hotel.

### 

(Morning)

8:00 to 12:00—Clinics (See clinical program)

(Afternoon)

12:15 to 1:00—Luncheon School of Medicine Building.

1:00 to 5:00—Section Meetings School of Medicine Building.

(Evening)

7:30 to 9:00

General Scientific Program of all Sections— Convention Hall, Huckins Hotel

#### Orations:

 Social Aspects of Tuberculosis— Dr. L. J. Moorman, Oklahoma City

> 9.00 to 12:00—Reception and Dance Huckins Hotel

An information desk will be maintained in the lobby of the Huckins Hotel throughout the meeting.

Taxicabs will leave the Huckins Hotel, Tuesday, 7:30 A. M., for the Clinics at the Hospitals.

#### LADIES' PROGRAM

#### TUESDAY, MAY 28, 1929

1:00 Luncheon, Oklahoma City Golf and Country Club, followed by a drive to points over the City.

WEDNESDAY, MAY 29, 1929 Matinee Party in afternoon.

CLINICS

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The following is a schedule of the Clinics to be held in Oklahoma City, Tuesday and Wednesday.

More detailed information as to these Clinics probably will be obtainable at the information desk, Huckins Hotel

#### Oklahoma City General Hospital

Tuesday, May 28, 1929:

May 28, 29, 1929:

9:00	Dr. Ellis MooreGenito-Urinary	
9:30	Dr. E. R. DavisHeart	
10.00	Dr. C. B. BondurantSkin	
10:30	Dr. Charles E. BarkerSurgery	
11:00	Dr. C. H. HallDiseases of Children	
Wednesday, May 29, 1929:		
9:00	Dr. Oscar WhiteSurgery	
9:30	Dr. J. J. CavinessEye	
10:00	Dr. J. E. HarbisonSurgery	
10.30	Dr. C. M. PoundersPediatrics	
11:00	Dr. Dick LowryGynecology	

#### University Hospital

Nervous and

Mental Diseases

Tuesday, May 28, 1929:

11:30 Dr. M. S. Gregory ....

8:30	R. L. MurdochRectal Surgery
0.00	V. Kucher Physical Therapy
9:00	A. B. ChaseMedical
9:30	C. E. ClymerSurgical
	9:00 to 10:00-W. J. Wallace, B. A.
	Hays, Rex Bolend, C. B. Taylor
	Genito-Urinary
10.00	Wm Taylor Pediatrics

10:00 Wm. Taylor Pediatrics
10:30 R. M. Howard Surgical
10:00 to 11:00—J. F. Kuhn, Joe Kelso,

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11:30 Wann Langston	No. X—Diabetes		
Wednesday, May 29, 1929:	No. 1—Goitre		
8:30 to 9:30—J. A. Hatchett, W. W. Wells Obstetrics	No. X—Fracture		
9:30 J. T. HeatleyX-Ray Demonstration	No. 1—GoitreDr. W. W. Rucks		
10:00 Le Roy Long, JrSurgical 10:30 Le Roy Long, SrSurgical	<u> </u>		
10:30 Le Roy Long, Sr. Surgical 11:00 C. J. Fishman Medical 11:30 E. S. Lain Dermatology	COMMITTEES		
Eye, Ear, Nose and Throat—	The following is a list of all Committees of the Annual Meeting:		
8:30 to 9:30—E. S. Ferguson, T. G. Wails, L. M. Westfall.	Dr. Arthur W. White, General Chairman		
9:30 to 11:00—H. C. Todd, W. E. Dixon Ear, Nose, and Throat	ADVISORY:		
11:00 to 12:00—A. L. Guthrie, Chester McHenry Bronchoscopic Clinic	Drs. Le Roy Long, Sr., A. L. Blesh, R. M. Howard, Charles E. Barker, A B. Chase, J. F. Kuhn.		
St. Anthony's Hospital	CLINICS:		
Tuesday, May 28, 1929:			
8:00- 8:30 Dr. YoungNeurology 8:30- 9:00 Dr. Early Eye, Ear, Nose, Throat	Drs. Le Roy Long, Sr., A. L. Blesh, R. M. Howard, Charles E. Barker, P. M. McNiell, A. D. Young, John Z. Mraz, J. E. Harbison.		
9.00- 9:30 Dr. MyersX-Ray 9:30-10:00 Dr. Von WedelPlastic Surgery	FINANCE:		
10:00-10:30 Dr. Allen Obstetrics	Drs. A. B. Chase, Horace Reed. L. A. Riely,		
10:30-11:00 Dr. La MotteMedicine	C. J. Fishman		
11:00-11:30 Dr. McBride Orthopedics 11:30-12:00 Dr. Soloman Pediatrics	STATIONERY AND BADGES:		
Wednesday, May 29, 1929:			
8:00- 8:30 Dr. SmithGynecology 8:30- 9:00 Dr. McHenryEye, Ear, Nose	Drs. W. W. Wells, W. E. Dixon, G L. Borecky.		
and Throat	ENTERTAINMENT:		
9:00- 9:30 Dr. Lea RielyDiabetes 9:30-10:00 Dr. John RileySurgery	Drs. C. E. Clymer, G. Penick, D. W. Branham, W. F. Eastland, R. O. Early.		
10:00-10.30 Dr. Lelia AndrewsMedical Gynecology	BUILDING:		
10:30-11:00 Dr. Horace ReedSurgery	Drs. J. M. Thuringer, H. G. Jeter, L. J. Starry,		
11:00-11:30 Dr. J. T. MartinGastro-Intestinal	Rex Bolend, H. H. Turner.		
11:30-1200 Dr. L. J. MoormanTuberculosis	ADVERTISING:		
Wesley Hospital  Drs. J. A. Roddy, L. A. Riely, A. D. Y. W. W. W. D. W. W. W. W. W. D. W.			
Tuesday, May, 28, 1929:	W. W. Rucks, J. M. Postelle, M. E. Stout.		
9:00—10:00	GOLF:		
No. 4—Surgery	Drs. S. R Cunningham, P M. McNeill, Horace Reed, W. W. Wells, R. O. Early.		
No. X—Pediatrics Dr. J. H. Garrison	RESERVE OFFICERS:		
No. 7—Obst. & GynecologyDr. J. H. Robinson 10:00—11:00	Captain W. E. McCormick, J. A. Roddy, Floyd J. Bolend.		
No. 1—Goitre	FRATERNAL DINNERS:		
No. 2—Surgical	Drs. J. P. McGee, A. C. Shuler, N. Price Eley,		
No. X—G-I	Rex Bolend, C. E. Clymer.		
No. 1—Goitre	WOMEN PHYSICIANS:		
11:00—12:00	Dr. Lelia E. Andrews:		
No. X—Obstetrics	WOMEN'S ENTERTAINMENT:		
No. Z—Obstetrics & Gynecology Dr. A. G. Hirshfield	Mrs. S. E. Frierson, Mrs. W. K. West, Mrs. A. R. Lewis, Mrs. L. M. Westfall, Mrs. M. M. Ro-		
Wednesday, May 29, 1929:	land, Mrs. A. L. Blesh.		
9:00—10:00	MUSIC:		
No. Z—Medical	Drs. Dick Lowry, Tom Lowry.		
No. 2—Surgical GynecologyDr. F. M. Sanger			

HOTELS:

Drs. L. J. Starry, J. B. Eskridge, H. D. Collins, C. E. Bates.

10.00-11:00

No. 4—Eye, Ear, Nose and Throat Dr. Fred B. Hicks

## TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

The Mind and Tuberculosis: Ben Wolepor, American Review of Tuberculosis, March, 1929.

The opinions of various authors, as to the effect tuberculosis has on the mind, are briefly given.

A study was made of one hundred patients. A mental history was obtained from each one, stress was laid upon his reaction to life before tuberculosis was contracted. Forty patients exhibited neurasthenic symptoms; eighty per cent of this group had far advanced, five per cent had moderately advanced and fifteen per cent had minimal pulmonary tuberculosis. Forty-four patients had a "shut-in" character, the remaining fifty-six were sociable and "good mixers."

The types of personality met with are described as (1) the rebellious, (2) the phlegmatic, (3) the pessimistic, (4) the optimistic, and (5) the restless, apprehensive. Group one consisted of twenty-two patients; there were sixteen in group two; twelve in group three; seven in group four; and forty-three in group five. Sixty of the patients examined did not manifest any neurasthenic symptons before or during their attack of pulmonary tuberculosis. In one patient neurasthenic symptoms appeared three years before the onset of pulmonary tuberculosis. Only one case manifested a stormy mental onset with his tuberculosis.

The results of these studies leads to the conclusion that there is no relationship between dementia praecox and pulmonary tuberculosis. The praecox develops as a rule upon the basis of a seclusive personality and yet only forty-four per cent of the tuberculosis patients examined were of the "shutin" type. Among the patients whose mental disease was complicated by pulmonary tuberculosis forty-six per cent had insanity present in their family, and twenty-one per cent had tuberculosis present in the immediate family.

Pulmonary tuberculosis brings to light inherent characteristics. It accentuates the mental traits of the patient, but it cannot produce a psychopathology of its own. It is true that a patient failing rapidly from pulmonary tuberculosis may maintain a secure confidence in his ability to regain his health. He is optimistic, but this mood is due, not to the specific tuberculous toxin, but to different factors. Tuberculosis is often marked by its remissions and exacerbations; a flare which frightens the patient is often succeeded by a subsidence in the disease and gives the patient hope. He assumes that because he has overcome one exacerbation that he will successfully triumph over succeeding ones.

The Cauterization of Adhesions in Artificial Pneumothorax by the Jacobaeus-Unverricht Method of Closed Pneumolysis: Ralph C. Matson, American Review of Tuberculosis, March, 1929.

The success of artificial pneumothorax is almost in direct proportion to the number and character of adhesions present and preventing satisfactory collapse of the lung. In 1913 Jacobaeus of Stockholm devised a method of dividing adhesions by means of a galvano cautery, introduced at one point through the chest wall and operated

under the guidance of a thoracoscope inserted through the chest wall at another point.

The original Jacobaeus instrument had a limited and reduced field of vision making the operation difficult. In 1922 Unverricht developed a thoracoscope equipped with a Zeiss system of lenses that gave a superb view. Meanwhile, Jacobaeus has improved his instrument. Indications are: (1) unsatisfactory pneumothorax on account of incomplete collapse of the lung because of strings, bands and folds of adhesions. (2) satisfactory pneumothorax in spite of adhesions, when high intrathoracic pressure is necessary to maintain the collapse, with consequent danger of lung rupture. and when pressure is causing uncomfortable symptoms, such as phrenic dyspepsia, coughing, paroxyms, etc. (3) Satisfactory pneumothorax in which bands of adhesions have become organized, causing early expansion of the collapsed lung in cases in which the pneumothorax has not been maintained sufficiently long.

Contraindications. (1) Cauterization should not be done during an acute formation of exudate. (2) Acute pyothorax.

Selection of cases should be made only after a careful study of steroscopic X-ray films taken before the pneumothorax and during its entire course. String adhesions do not all show on the x-ray films.

Results: The author has done one hundred cauterization operations during the past three years with the following results: Clinically successful, seventy-four; technically successful, clinically unsuccessful: bilateral pneumothorax, one; technically and clinically unsuccessful, twenty-five. The greatest success was achieved in the string and band type of adhesions.

Complications: Serous exudate, before operation, forty-two. Developed after operation, forty-eight. Purulent exudate (tuberculous), before operation, two. Developed after operation, sixteen. Purulent exudate (nontuberculous), before operation, none; developed after operation, none; hemorrhage (moderate; easily controlled by cautery), one; severe reactions (high fever, etc.), seven; shock or serious operative complications, none.

The technique of the operation is given with illustrations.

Lung Abscess vs. Gangrene. Diagnosis and Treatment: B. S. Kline, Cleveland, Jama., June 23, 1928, P. 2008.

Gangrene of lungs more frequent in adults than in children and, in last four years, more frequent than abscess at Mt. Sinai Hospital, Cleveland.

Pulmonary abscess unassociated septic focus elsewhere has fair prognosis.

Gangrene more serious, due to organisms from mouth.

In pulmonary abscess: Sputum yellowish, mucopurulent or purulent, little odor, with pyogenic organisms.

In pulmonary gangrene: Sputum foul, grayish or grayish green, shows spirochetes, fusiform bacilli, and vibrios in smears stained with strong fuchrin solution.

Careful sputum examination sufficient for different diagnosis.

Pulmonary gangrene does not respond well to treatment for abscess, but are often cured by arsephenamine treatment. Importance of different diagnosis, which so often is not made—W.A.F.

Tuberculosis of the Kidney. Pathogenesis and Treatment: California and W. Medical, May, 1928, P. 683.

Refers to pathological studies by Halle published in the British Medical Journal in which Halle recognizes a distinct hematogenous type, as well as a lymphogenous infection. In the former the bacteria lodge in the parenchyma; in the latter the infection spreads from the hilus to the pelvic mucosa.

Medlar (American Journal of Pathology, 2:40, January 14, 1926) examined by serial section a number of kidneys of patients dying of pulmonary tuberculosis. Found microscopic evidence of tuberculosis in practically all cases, some very minute and apparently healed.

Fullerton (British Medical Journal, 2:630, 1927) reviews statistics in support of view that in unilateral tuberculosis of kidney the best results follow early removal of the kidney.—W.A.F.

Tuberculosis of Lymph Glands: Diagnosis: Lymphangitis With Tuberculin Test: Frederick Eberson, M.D., San Francisco, American Journal of Diseases of Children, January, 1925, P. 29.

Streaks of lymphangitis in relation to positive skin tuberculin test is pathognomic of tuberculosis with an active focus of glandular origin. Reports studies of one hundred and thirty-five juvenile patients and ten adults,

Reaction occurs within twenty-four to forty-eight hours. Red streaks two to ten centimeters long. Infiltrated lymphogenous band may extend to axilla. Adjacent lymph glands indurated and palpable. Temperature rises one to two degrees. Reaction fades in twenty-four to forty-eight hours.

Tuberculosis: Pathogenesis: Primary Foci. Foci of Reinfection:—Max Pinner, William H. Maybury, San. (Detroit Municipal Tuberculosis Sanatorium, American Review of Tuberculosis, June 1928, P. 601.

(1)

Anatomical characteristics: Primary focus is a small exudative focus (miliary broncho-pneumonia) undergoing rapid caseation. Exudative origin proved by fact that elastic tissue structure is preserved and not pushed aside as in proliferative lesion. This caseated center is soon surrounded by productive tubercles which probably produce the inner "specific" capsule of later stages, consisting of broad hyaline connective tissue fibres; the outer non-specific capsule consists of ordinary connective tissue, probably the product of the nonspecific inflammatory reaction surrounding the primary focus. The draining lymph glands are always affected.—W.A.F.

(2)

The primary lymph node shows complete caseation surrounded by a dense capsule, the structure of the remaining lymph tissue being not materially changed.

The lymph node of later infection shows sluggish multiple productive tubercles with varying

extent of central caseation and without a definite capsule. The structure of the remaining lymph tissue shows, as a rule, hypertrophic adenitis and hyalinization of some of the reticular elements.

Primary focus also usually located close to the pleura and rarely at the apex—in other words, the best aerated parts of the pulmonary parenchyma are most frequently affected.—W.A.F.

 $\cdot (3$ 

In re-infection there is accentuation of both exudative and proliferative features. "For any given state of allergy the dosage of the re-infecting organism is the factor which determines whether allergy means immunity or hypersusceptibility, prolongation or shortening of life."

Allergy and immunity are coexisting but not identical, and one is not a direct measure of the other.

The dominant early feature is exudation (rather than proliferation). It may go on to complete caseation or may completely resorb, leaving the field to productive lesions. The former is the most dangerous course of tuberculosis, the latter the most ideal way of healing.—W.A.F.

(4)

Stages in tuberculous infection according to Ranke: first stage—localized parenchymatous and lymphoglandular lesion.

Second stage. Generalization by various routes—lymphogenous, hematogenous, intracanalicular and direct expansion—acute exudative reaction at site of metastasis, circumfocal inflammation, frequently rapid caseation.

Third stage. With time the hypersensitiveness decreases and immunity increases. Lymphogenous and hematogenous metastases decrease and finally cease and extension, if at all, only intra-canalicularly and by contact.

According to Krause two mechanisms are effective in limiting expansion of the disease: (1) Immunological processes. (2) Increased lymphoid tissue and narrowing of lymph channels in adults as compared to children.—W.A.F.

Tuberculosis of the Common Crow—A Preliminary Study: Charles A. Mitchell and R. C. Duthie, American Review of Tuberculosis, Feb., 1929.

The author reports that a careful review of the literature reveals very few reports of tuberculosis of wild animals or birds in their natural environment, and then only when raised under more or less artificial conditions in close association with domesticated animals or birds.

In February, 1928, the authors received at their laboratory thirty-six common crows shipped from Western Ontario, where these birds were reported to be dying in large numbers from a disease simulating "ocular roup" as encountered in domesticated birds,

At autopsy five of the crows were found to have fairly extensive and well defined lesions of tuberculosis. In four the lesions were confined mainly to the liver, with a moderate invasion of the spleen; acid fast bacilli were relatively few, and were short and comparatively plump. The other bird had extensive nodular tuberculosis of the spleen, three large nodular tubercles on the serous surface of the gizzard and numerous pin point

miliary tubercles in the liver. Acid fast microorganisms were numerous, long, slender and beaded.

They have examined in all forty crows, six, or fifteen per cent of which have shown well defined tuberculous lesions in which acid fast microorganisms could be demonstrated.

Lesion inoculations showed the organism to be pathogenic for chickens, guinea pigs and rabbits.

#### Diaphragmatic Studies in Tuberculosis. Paul D. Crimm, American Review of Tuberculosis, Feb. 1929

As one of the most important muscles involved in the act of respiration, the diaphragm alone increases the longitudinal diameter of the thorax. In conjunction with the excursion of the ribs the diaphragm creates the negative barometric pressure of the pleural cavity. A routine study of the respiratory muscles assists in the earliest possible diagnosis of pulmonary lesions.

In this series of one hundred cases examinations of the costal margins were performed and the direction and character of movement noted in each case. Ninety-four per cent of the cases showed disparity in the costal margin movement. Eighty-four per cent showed the costal margin on the side most involved to move at lesser distance from the median line. The disparity of movement is due, not only to the abnormal alterations in the arch of the diaphragm, and greater or lesser activation of the diaphragm, but also to the deactivation of the intercostal muscles.

# Pregnancy and Pulmonary Tuberculosis: Arthur H. Morse, American Review of Tuberculosis, February, 1929.

The most common theories which have been advanced to support the contention that the reproductive process as a whole deleteriously influences a coexistant pulmonary tuberculosis are: the upward displacement of the diaphragm associated with the enlargement of the uterus is said to diminish the capacity of the pleural cavities and to limit the expansion of the lungs, thus causing a slowing and decrease of circulation in the lungs. Dohrn has shown that the capacity of the lungs is not decreased under these circumstances due to the fact that the diminished height of the pleural cavities is compensated by an increase in width. Gross points out that as the result of an artificial pneumothorax the pulmonary circulation is disturbed, but the patient is usually benefitted.

Significance is attached by some to changes in certain constituents of the blood. A decrease in the lipolytic ferment is said to occur in pregnancy, leading to a lowered resistance as a result of the inability of the serum to dissolve the fatty or waxy substances of the capsule of the bacillus, but certain investigators report the lipoid content of the blood is greatly increased during pregnancy, and there is no satisfactory evidence, from a bacteriological point of view, that these ferments act in any direct way upon the bacillus. Others are impressed by increase in the cholesterin content of the blood during pregnancy, and suggest that the extension of the pulmonary infection depends upon the fact that the tubercle bacillus thrives more favorably upon a nutriment rich in choles-This view is based upon experiments in vitro, but there is no evidence that a similar activity occurs in the body. Still others believe that the need of calcium by the developing fetus calls upon the calcified pulmonary nodules, thus leading to a dissolution of these structures and a dissemination of tubercle bacilli. Contrary opinions hold that, as a result of increased absorption and decreased excretion, a sufficient increase of calcium occurs to fully care for the fetal needs.

The untoward influences of the puerperium are believed to depend in the first place upon the increased respiratory efforts associated with the second stage of labor, or to the sudden descent of the diaphragm following delivery, thus causing a dissemination of bacilli from the upper to the lower portions of the lungs. In the second place, bacilli are thought to be transferred into the blood stream of the uterus as a result, during the placental stage of the tearing through of tuberculous foci situated in the decidua basalis. The opinions and methods of treatment of eminent physicians are cited.

The first requisite in order to make accurate observations and to approach a uniform conclusion regarding this question is to include a large number of cases which can be observed over an extended period, for the results obtained from the restricted observation of a small number of cases are misleading. It would seem necessary, also, to review these patients in groups, the division of the groups being based upon the character and extent of the pulmonary lesion and upon the duration and normal or abnormal character of the pregnancy. The study should be undertaken as a cooperative effort on the part of trained specialists in pulmonary diseases and competent obstetricians.

# Bronchiectasis: Harold Brunn and Wm. B. Faulkner, Jr., American Review of Tuberculosis, February, 1929.

Many factors which lead up to this condition are mechanical in nature and may be both intra and extra-bronchial, producing more or less occlusion of the bronchus and thereby permitting the free ingress of air, but not its complete expulsion. This may be caused by foreign bodies, tumors, viscid mucous plugs, enlarged lymph nodes, etc. Antecedent infection is stressed as the important necessary corollary in the production of bronchial dilatation. Infections of the bronchial tree, chronic in nature, with exacerbations, causes, first, round cell infiltration and later the production of peribronchial fibrous tissue with damage to the walls of the bronchus.

Associated sinus disease frequently occurs in cases of bronchiectasis. Very frequently, changes in climate, which so ofen affects sinus trouble favorably plays an important part in the improvement which takes place in the pulmonary condition.

The authors state that it has been their experience in a few instances in which operation seemed justifiable, to find, upon carrying out hygienic and drainage methods along with a thorough cleaning up of the sinuses, that the bronchiectatic condition changed from a rather severe to a mild disorder, and they feel that the incidence of bronchiectasis might be diminished in its inception in a certain proportion of cases by the early recognition and treatment of sinus troubles in early life following the infectious diseases of childhood.

The use of lipiodol is virtually essential not only

for the diagnosis, but because its shows the extent of the disease, the number of lobes involved, whether it is bilateral and on which side the disease is most extensive, all of which are most important in the decision as to treatment.

The use of the bronchoscope is also important. Artificial pneumothorax informs us whether or not there are dense adhesions around the lung, but as drainage is the main problem, its use as a treatment of the disease may prevent rather than facilitate it and thereby lead to an extension rather than improvement.

The different operative procedures that have been undertaken are described.

Preliminary treatment which consists of rest in bed, sunlight, postural drainage, the use of the bronchoscope, cleaning up of the sinuses, possibly the use of vaccines and in cases of spirochetal infections the use of neosalvarsan is essential with most patients before any operative procedure is undertaken.

The authors have had five cases in which the operation of lobectomy has been done, as outlined by Lilienthal, and modified from time to time. They have had one death due to hemorrhage.

Illustrations of the operation accompany the article and the procedure is fully described in the January Archives of Surgery.

# ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D 717 North Robinson Street, Oklahoma City.

Arthrodesis: W. Rowley Bristow, British J. Surg., xv, 401, January, 1928.

The author calls attention to an increase in the number of arthrodeses being done since the war. The indications are pain and loss of function. The causative agents are usually arthritis, trauma and paralysis.

While wholesale arthrodesis of tubercular joints is not advocated, he believes it should be done if the bone is involved, chiefly in the knees and hip joints.

The technique of extra-articular and intra-articular arthrodesis is reviewed. Arthrodesis of the ankle is advised for traumatic arthritis arising from a malunited ankle joint fracture. The technique of Wilson in subastragaloid arthrodesis of Hibbs in spinal fusion are approved.

Reconstruction of the hip is preferred to ankylosis. The operation is simpler and the period of fixation is less. The procedure described by Hoke and by Dunn is the one employed in the paralytic deformities of the foot.

Treatment of Fractures of the Os Calcis by Arthrodesis of the Subastragalar Joint—A Report of Twenty-six Cases: Philip D. Wilson, J. Am. Med. Assn., lxxxix, 1676, November 12, 1927.

Fractures in the os calcis are severe disabilities, and the prognosis for good recovery is poor. They are usually fissured, or comminuted, and involve the calcaneo-astragalar joint. The body of the os calcis spreads outward and forward, leaving the foot in pronation, and with uneven fragments on the articular surface.

On healing, this rough articular area produces arthritic changes and limited motion with an unsatisfactory function in the foot. The methods in use, manipulation, moulding, and lengthening the tendo Achillis, have not yielded desirable results.

The operation of astragalar arthrodesis, including the cuboid and scaphoid joint in a few cases, resulted in bony ankylosis in the operated joints, and good results with only a slight difference in general mobility in the foot, as compared to the limited motion following the more conservative treatment.

The best results were in early operation, two or four weeks after the injury, when the average postoperative disability was five and one-half months. Later operations gave eight months disability. The operation is not advised for all fractures, but should be done when the comminution involves the joint surface.

Treatment of Ankle and Leg Fractures by the "Delbet" Ambulatory Plaster Splint: E. Leslie Robert, British J. Surg., xv, 414, January, 1928.

This method is used in ankle fractures of abduction and adduction etiology with lateral displacement of the astragalus, and in melleolar fractures with anterior or posterior displacement of the astragalus. It is also used in closed fractures of the tibia, the torsion variety of both bones fracture, in transverse fractures of both bones, and in some cases as a secondary splint for open fractures. The advantage of the method lie in the fact that weight-bearing may be started within two or three weeks, active knee and ankle motion is possible and the patient may return to work in this splint in from four to six weeks.

The Delbet plaster is prepared by using numerous layers of book muslin cut in the proper shape and dipping them in plaster cream before application. The leg is placed on a large board. Two splints are applied to the sides of the leg below the tibial tubercule, coming down below the malleoli. A third plaster encircles the first two at the lower border of the tibial tubercle. The fourth one fits snugly behind the heel and crosses over the crest of the tibia. The skin is greased before the application. Strips of calico bandage are placed over the plaster to hold them in place while drying.

Recent ankle fractures are treated by a box splint with elevation of the foot on pillows, x-rays, a general anaesthetic, and reduction by manipulation within forty-eight hours, with application of the Delbet splint.

Of twenty-four recent ankle fractures treated in this way, the average date of commencement of walking was fourteen days, of removal of plaster and cessation of all treatment fifty-two and two-tenths days, of abandoning sticks (21 cases), thirty-five days. The dates of returning to work are not given. There were five poor results.

In fourteen cases of leg fractures treated by Delbet method, the average period of treatment was sixty-two days.

Operative Treatment of Serratus Muscle Paralysis (Scapula Alata) C. Th. Willich. Arch. f. Orthop. u Unfall-Chir., xxv, 516, October 25, 1927

In serratus paralysis one can readily observe that a passive fixation of the scapula against the

thorax favors a partial restoration of motion of the humerus. For this reason operative procedures consisted in fixing the scapula to the thorax. Unfortunately many methods have not lead to permanent results. The author's modification of the fixation operation consists of the following:

Through a fifteen-centimeter incision, the vertebral margin of the scapula and spine are exposed. The scapula is drilled through, and through the drill-hole a wig of fourfold thick silk is drawn and fixed to the supraspinal or infraspinal ligament between the seventh and eighth spinous processes. The silk wig is tunnelled under the trapezius and latissimus dorsi muscles. Now, a piece of fascia lata three centimeters by fifteen centimeters is obtained and carried through the drillhole of the scapular angle. This fascial strip is wound around the masses of the altissimus and trapezius muscles, thus encircling them and drawing them toward the scapular angle. Further, the ninth rib is exposed, and the interior angle of the scapula is attached to it in the posterior axillary line. The incision is closed. The arm is placed in right angle abduction, and left so for two weeks. Three weeks after the operation, gradual motion is commenced. The author claims very good results six months after the operation.

# EYE, EAR, NOSE and THROAT

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Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

Osteomyelitis of the Superior Maxilla in the Nursing Infant (L'osteomyelite du maxillaire superieur chez le nourrisson): Terracol, J.: Archinternat, de laryngol., xxxiv, 532, 1928.

The author reviews the embryology of the maxillary sinus and its anatomy in the newborn infant.

He states that osteomyelitis of the superior maxilla in the infant is rare. Panzel found seven cases among 15,000 patients. Terracol has seen only two such cases. He believes that as a rule the portal of entry of the infection is the mouth, but that in some cases may be the antrum. According to Broca, the zone of growth of the teeth plays a part similar to that played by the epiphyseal cartilage in the long bones. The gingivitis associated with eruption of the teeth is followed by folliculitis and the folliculitis by osteitis, the whole bone soon becoming involved.

In the beginning, the child may cry and refuse to nurse, but there are no localizing signs. Soon, however, there is a unilateral swelling of the face associated frequently with closure of the eye, infiltration of the eyelids, and chemosis. The skin of the jaw becomes red and the veins dilate. Occasionally the inflammation suggests erysipelas. Palpation is very painful and the tissues are hot and hard. There is a marked contrast between the half of the palate that is normal and the half that is swollen. Fluctuation is soon noted, and a fistula may form at the edge of the tooth socket, at the inner angle of the eye, or in the edge of the orbit. If it is formed at the edge of the tooth socket the germ of the tooth may be expelled. Frequently two teeth are lost, the canine and the premolar. The fistula rarely forms in the vault of the palate. There is always a nasal discharge.

As in other forms of osteomyelitis, the acute phase is succeeded by a chronic phase. Pus and

sequestra are discharged, and probing reveals denuded bone. Feeding is difficult because it is painful, and the osteomyelitis may be followed by septicaemia with multiple visceral localizations.

Operation should be performed as soon as the diagnosis is made. The principles to be followed are the same as for osteomyelitis elsewhere—incision of the soft parts and trephining of the bone. If a fistula has already formed, the skin opening should be enlarged, the bone curetted, fungosities or sequestra removed, and drainage established. If a fistula has not formed, the opera-tion should be performed through the mouth in order that disfigurement may be avoided. Without any anaesthesia or with only slight infiltration of the mocous membrane with 1 per cent novocain, an incision should be made down to the bone and the bone trephined and curetted, The operation should be performed rapidly. Care must be taken not to curette too deeply as it is impossible to tell the exact extent of the lesion in young spongy bone and there is danger of bringing about a blood infection. After the curettage, the walls should be touched with a weak solution of zinc chloride and the cavity drained. Drainage may be made through the nose. Sometimes furthur collections of pus are formed. These are especially apt to occur beneath the orbit and must be incised. Cicatrization should be slow and should occur from the bottom of the wound toward the surface. Vaccines may be used as a supplement to the operative measures. The late results are good.

In all of Broca's cases the face remained perfectly symmetrical. The vault of the palate and the nasal fossae also remained normal in shape, but as the teeth corresponding to the expelled tooth germs were lacking, a prosthesis was necessary later.

Ultraviolet Light in the Treatment of Ophthalmic Disease: Duke-Elder, W. S.: Brit. J. Ophth, xii, 289, 1928.

This article is a report of the results obtained in 425 cases of opththalmic disease which were treated by general and local phototherapy at the Royal London Ophthalmic Hospital.

Clinically, the most obvious effect of radiation is the production of an erythema in the skin, an increase in the bactericidal power of the blood, a slight erythrocytosis, an increase in the haemoglobin and platelets, a decrease in the polymorphonuclear cells, and an increase in the lymphocytes, eosinophiles, calcium, phosphorus, and iron.

The great majority of cases respond within a reasonably narrow margin, but the site of the lesion and the individual variation of each patient render a routine dosage based on a standard test inexpedient and unsafe. The best basis for dosage is the erythema of the skin and the bactericidal power of the blood, which seem to be correlated.

In the treatment, the body is divided into three areas: the chest and front of the abdomen, the back, and the legs. Each of these is radiated on alternate sittings, the dose being gradually increased. The vapor lamp is used at first and then the carbon arc. Twenty treatments are given, and after a rest of from two to three weeks they are repeated if necessary.

Not only the effect on the eye condition, but also the general tonic effect is very marked. The patient feels better and stronger, gains weight, and sleeps better; the appetite increases, and the general immunity of the body is raised. The most marked improvement is noted in children.

The dangers of the treatment are overdosage and idiosyncrasy of the patient.

Overdosage causes general depression, drowsiness, fatigue, loss of energy and appetite, headache, irritability, and insomnia. Patients with a low blood pressure require smaller doses than others and show the signs of overdosage quickly. The presence of a fever is a contra-indication to the treatment. During menstruation, the doses must be reduced if signs of overdosage appear.

An erythema of high degree is associated with more discomfort than danger; healing occurs without scarring. No sequelae such as follow X-ray dermatitis have been reported. There is no danger of epithelioma despite the finding of active mitosis in the basal layer of the skin.

The eyes should be protected at all times because the ultraviolet light may cause a painful photophthalmia, scotomata, cataract, or conjunctivitis

The effects of ultraviolet light treatment are best demonstrated in the chronic and intractable cases of iridocyclitis. The pain is relieved, the eye becomes white, corneal precipitates clear up, pupillary adhesions break, the vitreous clears, and vision improves. In tuberculosis, the average response is good, but in syphilis the response is always poor.

The author believes that most failures of the treatment are due to excessive dosage. In the cases of choroiditis, scleritis, and keratitis reviewed the results were generally good even when the condition was severe and chronic. In the case of interstital keratitis, the ultraviolet light was of no benefit except that it exerted a tonic effect on the general health. Corneal ulcers responded better to local irradiation than to the general light baths. No improvement was noted in corneal opacities. Recurrect hordeola, tuberculous dacryocystitis, and the conjunctivitis associated with debilitating disease, coryza, and hay fever reacted well to general light treatment.

The Proteins of the Lens and Their Chemical Changes in the Pathogenesis of Senile Cataract: Tassman, I. S., Arch. Ophth., Ivii, 361, 1928.

While many new studies on cataract have been made in recent years, there is still much to be learned regarding the various chemical changes taking place in the proteins of the lens. It is known, however, that the total proteins constitute about 35 per cent of the lens mass and consist of a soluble and an insoluble portion. The soluble portion makes up 52 per cent of the total mass, and the insoluble portion 48 per cent. The soluble portion contains alpha crystallin, beta crystallin, and an albumin. The alpha crystallin forms 37 per cent, the beta crystallin, 63 per cent, and the albumin, 1 per cent of the soluble protein. The alpha crystallin is found mainly in the external or cortical part of the lens and the beta crystallin mostly in the more central part. The albumin shows no noticeable distribution. The insoluble protein or framework is found to increase from within outward.

Lens proteins, like other proteins, yield a positive reaction with sodium nitroprusside and ammonia. In this reaction, the beta crystallin is stronger than the alpha crystallin and the insoluble albuminoid is negative. The reaction is said to depend upon the presence of cystein. Its intensity decreases as the two crystallins vanish from the lens until, in mature cataracts, it becomes entirely absent. This seems to suggest that opacities follow a reduction of the soluble crystallins, but our knowledge regarding the relationship of the chemical changes in the proteins of the lens to the pathogenesis of senile cataract is still incomplete.

Some Observations on Nasopharyngeal Epidemics in Public Schools: Glover, J. A.: Proc. Roy. Soc. Med., London., xxi, 1593, 1928.

Glover states that over 80 per cent of the illnesses occurring in school children are transmitted by droplet infection. He believes that some of the increase of sickness in the public schools is apparent rather than real, being explained by greater attention to minor febricula. The true increase he attributes to the increased prevalence of influenza, the aftermath of the great epidemic of 1918, and the increased demands for public school education which has led to overcrowding.

The most common droplet infections are influenza feverish colds, chills, pyrexias of unknown origin, and tonsillitis. The regular infectious diseases are comparatively infrequent. The author discusses the incidence, bacteriological findings, and incidence of pneumonia, otitis media, and tonsillitis.

In the prophylaxis, vaccines are uncertain. There is some evidence, however, that they may diminish the incidence of complications. If used, they should be administered before the danger period, i.e., not later than November.

Intensive prophylaxis other than the use of vaccines should include: (1) special efforts to prevent children from returning to school after the holidays infected with influenza or febricula; (2) records of the temperature for three weeks after their return; (3) immediate isolation of all children with pyrexia and catarrh; (4) the forbidding of work before breakfast for at least the first six weeks of the term; (5) a rule that all hot baths and showers taken during the day or after games should be followed by a cold shower; (6) the prevention of chilling during games; and (7) increased provisions for dry clothing.

Infection takes place mainly in sleeping quarters. Therefore proper spacing out of the beds and thorough cross-ventilation in dormitories are of paramount importance. The author cites instances of cross-infection due to the proximity of beds and reviews the standards of wall space, floor space, and cubit space laid down by the Royal Commission, Board of Education.

Masked Mastoiditis in Children up to the Age of Two Years: Macneil F. A. Canadian M. Assn. J., 1928, xviii, 688.

Macneil states that mastoiditis in infants and young children has been recognized in the early stages only within the past few years. The delay in its recognition is frequently due to the fact that the symptoms in the baby are not the symptoms in the adult. The ear symptoms in the infant are frequently masked by gastro-intestinal symp-

toms. Therefore the importance of a thorough otological examination in cases of gastro-intestinal symptoms cannot be overestimated. In the author's opinion, mastoiditis in infants is quite common and its mortality can be considerably reduced only by closer cooperation between the pediatrist and the otologist.

Constitutional Deafness. (1) Definition. (2) Elevation of Lower Tone Limit—A New Conception: Gottlieb, M. J. Laryngoscope. 1928 xxxviii, 306.

Gottlieb defines constitutional deafness as deafness with a progressive course which is associated with a constant elevation of the lower tone limit, a negative Rinne test, abnormal blood chemistry, and a variable contraction of the visual fields for form and color. He ascribes this form of deafness to a disease process in the membranous portion of the cochlea, particularly in the cochlear nerve and its branches. The elevation of the lower tone limit he believes is due to circulatory changes in the cochlear artery caused by toxaemia and affecting the nerve fibers to the upper coil of the cochlea which are believed to lie in the center of the nerve.

# DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Buliding, Oklahoma City

The Eczema-Asthma-Prurigo-Complex. R. Cranston Low, Brit, J. Dermat., 40:389, October, 1928.

This subject is discussed in detail with numerous references to the current literature. The material is studied under the following sub-headings: Prurigo and eczema; association of eczema and asthma; protein skin tests; blood changes in asthma; heredity; ichthyosis; and the alteration of eczema and asthma. The author comments freely on the lack of space given these subjects in modern text-books of dermatology, and feels that the whole subject should be discussed thoroughly in the light of modern conception of their association with anaphylaxis and sensitizat tion. He found in a statistical study a considerable number of cases of chronic eczema there was a history of asthma and vice-versa. The fact that both chronic eczema and asthma give positive skin reaction to various proteins suggests that in cases of combined cases of asthma and eczema the same protein is a common cause. The author cites cases to confirm this observation. It is his experience that the younger the patient the more frequently food proteins are responsible, while in later life animal emanations, dust and bacteria enzymes from focal infection are an important etiology. He gives some valuable comments on the relation of dermatitis venenata or eczema due to an external cause to which the skin is sensitized and states that the corresponding lesion in the respiratory tract is hay-fever. He concludes that, pathologically and clinically, these diseases are analagous in every respect. This being so, it is surprising that this complex does not more often occur in the same patient.

On the Psychic and Nervous Component of the so-called Allergic Skin Diseases and Their Treatment: W. T. Sack, Brit. J. Dermat., 40:442, November, 1928.

In his examination of the mental condition of

all patients coming to him as a skin specialist, Sack was struck by a common association between diseases of the skin (especially pruriginous ones) and the mental emotional irritation. In many cases he was able to succeed, by hypnotism alone, to cause pruritis, which had resisted all other treatment, to disappear entirely. In speaking of allergy, Sack states that it imputes a complete change in the whole organism, and though manifested in special organs, it brings the question down to the problem of the whole constitution of the individual. He mentions that recent publications seem to show that the similarity of allergic reactions on the skin may not be based on this quality alone, but may rest also on specific alterations of the autonomic nervous system. In some cases the same symptoms noted in allergic diseases are found and not the slightest sign of allergy can be demonstrated, as in cases in which the symptoms are produced by purely psychic factors. It is established that a correlation exists between the autonomic nervous system and the endocrines, and that mal-function in one is accompanied by disorderly action in the other. Working on this basis the author used a synthetic ephedrine with favorable results.

Melanoma (Melanotic Sarcoma) of Ovary With Discoloration of Skin: J. R. Miller, New England J. Med., 199:830, November, 1928.

Miller reports a case of melanoma involving the ovaries and suprarenals which is thought to have been primary in a pigmented mole. The case presented an unusual feature hitherto unmentioned in the literature, namely, a uniform discoloration of the skin of the entire body. It was credited as being due to the presence of a soluble melanin in the blood stream, though the influence of involvement of the suprarenals cannot be disregarded, especially as there is no record of the blood pressure or blood sugar examination. No other tumors were noted.

Burning Sensation of the Tongue Caused by Hyperacidity: J. Sellei, Deutsche Med. Wchnschr, 54:1758, October, 1928.

The chemical examination of saliva in patients with a sensation of burning of the tongue yielded normal results. The idea was entertained that the trouble might be caused by sharp teeth or the material used in dental work, but was dismissed after investigation. But on further examination most of the patients were found to present a condition of hyperacidity, anacidity was found only occasionally. Pernicious anemia should always be suspected when the latter observation is made. The gastric juice and the blood should always be examined in every case of burning tongue. The question of tapeworm should receive attention.

Treatment of Skin Disease Without Gauze Dressings: A. Strauss, Med. Klin., 24:1512, September, 1928.

For a covering of the skin to avoid gauze dressings, Strauss used the following: Liq. pet. 4 parts, glycerine 8 parts, starch, zinc oxide and distilled water of each one hundred parts. He used various medicines added to this mixture as a base according to the case. This preparation has the consistency of an ointment and the advantage that it does not become brittle after it has had time to dry. Another preparation he suggests is his water

soluble varnish: Tragacanth 3 parts, zinc oxide 10 parts, an ointment base composed of anhydrous wool fat and paraffin 100 parts, and distilled water 100 parts: Small quantities of eosin and sulphonated bitumen may be used to tint the mixture for cosmetic tastes. If the cooling action is to be desired a two per cent solution of aluminum acetate may be used instead of the water. For a deeper action the following basic formula may be of use. Starch 10 parts, zinc oxide 5 parts, beeswax 1 part, the ointment base first mentioned 40 parts, and distilled water 100 parts. The author suggests this as a preventative against tissue eczema and similar conditions.

Can Syphilis Be Transmitted by Lip-Stick? A. Buschke and A. Joseph, Med. Welt, 2:1417, September, 1928.

A girl who had borrowed a lipstick from a friend five years before presented a typical chancre on the upper lip. To find out whether or not infection from this source is possible, Buschke and Joseph put some serum from a chancre on a lipstick and kept it at room temperature and moistened it with physiological salt solution after 24 hours and found the spirochates motionless. Cultures of spirochates dried for two hours still showed motile spirochates. The spirochates on a lipstick are protected from the harmful effect of light and the possibility of such an infection is feasable since the mucus membrane of the lip may have erosions into which the spirochates may be inoculated.

Miliary Tuberculosis of the Skin: E. J. Meijers, Nederl. Maandschr. v. Genseek., 15:346, 1928.

A report of a child of two which was brought to the clinic with a symptom complex of meningitis. The father of the child had recently died of open tuberculosis. The entire skin of the face was covered with round papules and the extremities were covered with a like condition. Most of these were covered over in the center and were the size of a pinhead. A vesicle could occasionally be found. The efflorescence bore a striking resemblance to papulonecrotic tuberculids, they were not hemorrhagic. The X-ray picture of the lungs showed a typical picture of miliary tuberculosis. The general condition of the child grew rapidly worse, although the tuberculids showed a tendency to heal and no new ones occurred. Upon examination after necropsy under the epithelium in the cutis a few giant cells could be found, tuberculosis bacilli were not found.

# BOOK REVIEWS

Angina Pectoris by Harlow Brooks, M.D., 176 pages. Prices \$2.50. Harper & Brothers, Publishers, New York City.

The second volume of the Harper medical monographs entitled "Angina Pectoris" has been written by Harlow Brooks, M.D., Professor of Clinical Medicine, New York University, and Consulting Physician to New York's largest hospitals.

Angina Pectoris is likely to receive too little attention from the practicing physician, or it is accepted as a fatal syndrome. The author has discussed the etiology, so far as it is known at the present time and has given careful consideration to the pathology, and pathologic physiology as de-

veloped from his observations. Symptomatology, including obscure types of the syndrome, differential diagnosis, especially between true and false angina, and detailed treatment are presented clearly and comprehensively.

Dr. Brooks assumes a new outlook for angina patients or those predisposed to it by reason of heredity or other etiological factors. He advances the idea that angina may not be fatal or that if treated in its early stages, the result may be regarded as an effective cure. It is possible, writes this authority, to so regulate the lives of those predisposed to this condition, that they may escape it.

The author of this volume writes from personal experience in New York's largest hospitals. The book is not a review of the literature already published but is a thorough study of the subject from the consulting physician's viewpoint. Dr. Brooks lays particular stress on the treatments which should be given in these cases and under certain conditions.

These new publications in the Harper Medical Monographs are attractively priced, compact in form and authoritative, designed to give the general practitioner a complete and up-to-date library on individual diseases, methods of treatment, etc. The advisory editorial board for this series includes a group of eminent authorities in the medical profession. This series should be of great value to physicians who now find it difficult to keep abreast of the latest developments because of the size and complexity of the literature, and the expensiveness and bulk of the average medical book.

Thrombo-Angiitis Obliterans—Clinical, Physiologic and Pathologic Studies, by George E. Brown, M.D., and Edgar V. Allen, M.D., Division of Medicine, Mayo Clinic, Collaborating in Pathology with Howard R. Mahorner, M.D., Fellow in Surgery, The Mayo Foundation. 12mo of 219 pages with 62 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$3.00 net.

This book deals with a baffling and intriguing disease. These cases have only to be seen to at once challenge the curiosity and commiseration of the observer. Early diagnosis is difficult and treatment is extremely difficult. This little volume undertakes a consideration of the principal features from history and etiology to treatment and prognosis.

Gynecology, by William P. Graves, M.D., Professor of Gynecology at Harvard Medical School. Fourth edition, thoroughly revised. Octavo volume of 1016 pages, with 562 illustrations, 128 in colors, Philadelphia and London: W. B. Saunders Company 1928. Cloth. \$10.50 net.

This fourth edition of an already well known work has been brought thoroughly up to date. Such subjects as physiology of menstruation and ovulation, endocrinology and organotherapy have been re-written. There are new chapters on the present knowledge of cancer, and etiology. Endometriosis has been given exhaustive comment while the entire subject of sterility, including the latest ideas of etiology and treatment has been re-written. This is a very valuable volume for the student and practitioner.

Principles and Practice of Obstetrics, by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. Fifth

edition, thoroughly revised. Large octavo of 1140 pages, with 1128 illustrations, 201 in colors. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$12.00 net.

Professor DeLee is too well known an authority on obstetrical matters to need introduction. This great volume evidences the master hand of the artist throughout its rich pages. No student or practitioner interested in obstetrics can afford to be without this work. Its scope includes every maneuver, procedure and measure which has been proven worthy of use.

Pediatrics for the General Practitioner, by Harry Monroe McClanahan, A.M., M.D., Professor of Pediatrics Emeritus, University of Nebraska, member of the American Pediatric Society, expresident of the Nebraska State Medical Association. Cloth, 606 pages, 230 illustrations. Philadelphia: J. B. Lippincott.

This book represents a modern clinical picture of the diagnosis, treatment and management of infants and children. It is written in the belief that sick infants and children are and will continue to be under the care of the family physician and to the family physician this authority attempts to appeal. The work is finely illustrated and should appeal to those having the responsibility of the infant problem at heart.

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# POTENTIAL CARDIAC DISEASES IN CHILDREN

CARROLL M. POUNDERS, M.D., F.A.C.P Instructor in Pediatrics, University of Oklahoma School of Medicine, Oklahoma City.

Cardiac disease plays a very prominent part in our mortality and morbidity rate, having in recent years outstripped tuberculosis. We feel rather confident that, at least, a large per cent of these troubles have their beginning, or the foundation for their beginning, during childhood. Occurring at this time many of them go undiagnosed and neglected, resulting in a permanently crippled heart that breaks down in later years or is discovered more or less accidently by some routine physical examination. Even when the lesion is discovered early permanent disability is apt to follow regardless of how much care is bestowed upon the individual. The medical profession should not be held responsible for all the oversights here, as many cardiac cases do not come under observation until the lesion is well developed. But the insidious beginning makes it quite easy for a large number to be overlooked.

Now it is a matter of common knowledge that 80 to 90 per cent of the cases of organic heart disease in children are closely associated with a group of conditions fairly well recognized—the so-called rheumatic manifestations. It is by focusing our attention on this group that we are going to make headway against it. In other words, the best time to treat the cardiac case is before it develops.

The group of rheumatic manifestations consists of (1) recurring tonsillitis and pharyngitis; (2) acute rhemuatic fever; (3) myositis, muscle, bone and joint pains (growing pains); and (4) chorea. It might be thought advisable to include under a fifth heading scarlet fever, pneumonia, diphtheria and other infectious diseases. But it is not generally believed that these play a prominent role in the etiology of cardiac conditions. Individuals having one or more of the affections mentioned in the above group should be con-

sidered and treated as potential cases of endocarditis. If neglected, a certain per cent of them are destined to become cardiac cases sooner or later.

Tonsillitis might be considered as the fountain head of all the trouble. There is scarcely an organism with which we are familiar that cannot be found on the surface or in the crypts of tonsils that are chronically diseased. In their hypertro-phied state there is a rapid, abnormal growth of tissue with an increased surface area and vascularity. The infecting organisms may be limited to the mouths of the crypts, they may have gone deeply into the crypts, or may have infected the lymphatic tissue. The openings of the crypts may close and the deeper portions become minute, encapsulated abscesses. Owing to the hypertrophy and increased vascularity it is quite easy for infectious agents to enter directly into the system and there select and attack vulnerable tissues. Especially can such activities be ascribed to the various members of the streptococcus group. The endocardium happens to be one of the vulnerable points.

We must remember that the symptomatology of acute rheumatic fever in early life is quite different from that seen in older persons. It is not common under four years of age. In many instances the only symptoms are indefinite pains in the extremities, often not located by the child in the joint at all. There may be a little stiffness of the joints or lameness with a slight elevation of temperature. This often goes no higher than 100 degrees F. These symptoms may last only one or two days or a couple of weeks. The more severe cases may have definitely localized pains, show some swelling and redness about the joints and quite a little fever. However, the majority of them run a very low temperature and are not sick enough to want to stay in bed. So we are dealing with a very mild and innocent ailment that makes little impression on the untrained individual. At the same time it is apt to lead to the most serious consequences. We have fairly accurate information to the effect

that, if neglected, from 50 to 75 per cent of these individuals will sooner or later be victims of cardiac disease. And another important point is this—cardiac conditions are just about as apt to develop in the mild cases that are not sick enough to go to bed as they are in the most serious ones. And we also have reason to believe that if properly cared for only a small per cent need have diseased hearts. Parents must be informed of the dangers and given a chance to cooperate. During an attack the child must be put to bed until the symptoms have disappeared and until one is sure the heart has escaped. salicylates can be used and in my opinion are helpful. A five year old child can take five grains of the salicylate of soda with an equal amount of the bicarbonate every three hours. Infected tonsils should be removed as soon as the acute symptoms have sufficiently subsided. Sinus infections should be looked for and the teeth should be carefully checked by a competent dentist.

By myositis is meant such conditions as torticollis. Muscle, bone and joint pains, include such pains as occur in the limbs and about the muscles and joints—popularly known as growing pains. Such conditions actually belong to the rheumatic group and are potential cases of cardiac disease. Children presenting such symptoms should have careful attention. Here too, all possible foci of infection should be eliminated. Diseased tonsils should be removed as soon as possible. There should be the same careful attention to teeth and sinuses as is urged in the presence of acute rheumatic fever.

Chorea or St. Vitus dance is more common between the ages of five and fifteen years, much more common in females than in males, occurs most often in the spring and is more apt to be seen in children of neurotic families. The disease itself is distressing but generally not serious except for one thing-cardiac involvement occurs in from 25 to 50 per cent of the cases. So when we see this condition we must think first and last of the heart. Rest, food and time are the most important elements in the treatment. Proper amounts of bromides or even opiates should be given when necessary. Aspirin has proved to be a very useful drug and is considered a specific by some good men. Infected sinuses and abscessed teeth should be corrected even during the attack. Tonsillectomy is nearly always advisable but should not be done until after the acute stage has subsided. Given the same amount of care and attention, a higher per cent of the chorea cases will finally develop cardiac disease than will any of the other conditions mentioned.

Now, a few words about acquired cardiac disease itself-more especially endocarditis. Few conditions of childhood deserve more careful study and investigation, or have a greater bearing on the child's future well being. It does not commonly show up under the age of five. The beginning is nearly always insidious in nature and easily overlooked. The most important single symptom is temperature. This is not high. A persistent, low-grade fever, associated with any of the conditions that have been discussed should arouse suspicion. It is apt to be irregular, running a somewhat septic course. An increasing pallor is significant. Failure to gain weight, headache and frequent nose bleed are suspicious. A rapid pulse is a very important sign and if persistent should be considered cardiac disease until proven otherwise. As a matter of fact all kinds of symptoms are seen except those that might be referable to the heart itself. These are strikingly absent. No palpitation, no precordial pain, no distress whatever as a rule. In examining the heart, the rate should be noted first. Inspection may show the cardiac impulse over a somewhat widened area if the condition has been running for some time. Palpable thrills are not very common. The stethoscope generally gives the earliest dependable signs of all. At first we have merely an impurity or muffling of the first sound. which later develops into a murmur with an accentuation of the pulmonic second sound. As the disease progresses subsequent developments bring about changes and results in the characteristic findings that are fairly easily recognized.

A few years ago St. Lawrence made a study of 100 cases of cardiac diseases in children to determine the relative frequency of the various rheumatic manifestations associated. His findings were:

Acute rheumatic fever	52%
Recurrent sore throat	7%
Muscle, bone and joint pains	9%
Chorea	15%
Both acute rheumatic fever	
and decision	P ~

The same investigator took 65 children showing some of the various rheumatic

manifestations but free from cardiac involvement when first seen and observed them over a period of four and one-half years. Everything possible was done to prevent the development of cardiac disease. Among this group there were 16 cases of uncomplicated acute rheumatic fever; nine cases of this associated with chorea; eight cases of myositis, bone and joint pains, and 32 cases of chorea. During the period of observation 16 cases of heart disease developed, all of which were in children having chorea. The conclusion is that among the potential cardiac group that go uncared for acute rheumatic fever is the most formidable condition. Of those receiving close attention chorea is the most dangerous. In other words, no matter what you do for the chorea cases, a fairly high per cent of them will, at some time or other have cardiac disease—39 per cent of the above series.

Then, to sum up, when children are brought to us with recurrent tonsillitis, symptoms of acute rheumatic fever, complaining of repeated muscle and joint pains (especially in cold damp weather) or showing signs of chorea, they should be immediately classified as potential cases of heart disease. Parents should be told of the danger and advised to keep such a child under medical supervision until it is 12 years of age. In nearly all such an early tonsillectomy is indicated. Teeth must be carefully watched and sinuses checked. All possible foci of infection must be eradicated. During acute symptoms put them to bed and use the salicylates when indicated. All subsequent attacks of pyrexia should receive careful attention. It is entirely reasonable to believe that a more general following out of such measures will, in a few years' time, bring about a marked reduction in our death rate from heart disease.

210 West 10th St.

REFERENCE:

 St. Lawrence, William T.: Potential Cardiac disease and Prevention of Organic Heart Discase in Children, J. A. M. A. 78:947-953, April 1, 1922.

# FEEDING AND CARE OF INFANTS.

# C. V. RICE, M.D. MUSKOGEE

The pediatrician is a practitioner of preventive medicine and should feel that the health and strength of the future generation are within his guidance. We know

how many of the chronic diseases of the adult, such as rheumatism and heart diseases of middle and later life, can be traced to infections of childhood.

Frequently, in the examination of the young nursing baby with tonsil infection, the only sign is fever which is attributed to the stomach or cutting of teeth. An infant with fever the only symptom, the throat, ear and urine should always be considered. The child of pre-school age rarely ever complains of sore throat and upon inquiry will deny having pain, which may or may not be true, but when inspected the throat will often show a well developed case of tonsillitis. In otitis media, the restless infant with a severe cold, fever and who cannot sleep should have the ears examined. The drum may be found red or bulging, or it may appear normal, but if the mother tells you the baby is unusually cross you should recheck. It is not always the red bulging ear drums that tells the story and if you decide to puncture, you most probably will find pus. In making the diagnosis, we must carefully consider the history the mother gives. After excluding the throat and ear, the other exciting cause of fever, especially in the female child, is pyelitis. If the infant has higher fever than he seems to be sick, we can almost make a diagnosis of kidney involvement without a urine examination. Every specimen of urine does not contain pus cells so it may be necessary to examine several before they are found. The question of the best time to remove tonsils often presents itself and the answer is to have them removed regardless of age when the infant or child has repeated attacks of tonsillitis and on the whole is not doing well, has no appetite and is not gaining in weight as a child should for his age and surroundings. There is nothing to which he responds more miraculously and satisfactorily to all concerned than that of a tonsillectomy, when needed. As for the red bulging ear drum or the one that may not show these symptoms but from all indications is the seat of trouble, a puncture should be made and this will not only relieve the child's pain but may prevent a mastoid operation or organic complications.

In feeding it is understood that breast milk is the most ideal, but it must be remembered that breast milk does not always prevent nutritional disturbances. The child may have scurvy, rickets and tetany as on artificial food so it is quite important to regulate the mother's diet not only after the baby is born but also before the birth. In checking these babies with X-ray, we find that where the mother has not had proper diet, as in vomiting of pregnancy, which continues throughout the term, the child is born with rickets and though he may be above the average in weight, the condition is present. I have been giving my expectant cases Oscodol or Acterol to aid the absorption of calcium and it will be interesting to X-ray these babies for rickets during the first few weeks of life, then to compare them with the babies whose mothers have not had similar treatment. We are told that 100 per cent of the infants in certain parts of the United States and about 60 per cent in the Southwest, have rickets. As yet, we have no sure preventative in the incipient or mild stage, but sunshine and cod liver oil will do much in retarding the advanced stage. Clinically, the incipient form cannot be detected and it takes the X-ray to determine these mild forms, and someone specially trained to interpret the plates.

Recently, I have had some interesting surprises with my clinically 100% babies, with the realization that an absolute preventative in rickets has not yet been found. Their diet varied and they were about equally divided; breast milk, cod liver oil and sunshine; lactic acid milk, cod liver oil and sunshine; modified sweet milk with cod liver oil and sunshine. There were twenty-three of these babies (the average age was 10 or 11 months), six of whom had been on a vegetable lactic acid milk without cod liver oil or sunshine, and the X-ray did not show any sign of rickets. This method of feeding with the X-ray findings, will be given in detail in a later paper.

There are many methods by which an infant may be fed sucessfully, but there are only a few results that need to be considered. In fact much depends upon the mother, and we can tell with almost certainty what success to expect when she expresses her knowledge of infant feeding. Unfortunately, we all occasionally have the mother who will not mean success, as common sense plays equally an important part as science in feeding her child. You cannot measure the same amount of milk to all babies of the same age; some will take more and some will take less; a baby on the breast will take all he wants and a baby on the bottle should have the same privilege. I had a mother with retracted nipples who could not nurse her baby, so he was at once fed lactic acid milk, but was not satisfied until he had four ounces, which was as much as a two month old infant should have. amount was given with no ill effect during his stay at the hospital, but a satisfied baby. On the whole, so long as we feed a clean, digestible food, containing the proper food elements and sufficient number of calories, we will meet with success, regardless of the method used. However, we must must also use a little art. If the mother tells you that she cannot stand the odor and appearance of lactic acid milk and that she is sure her baby cannot take it, it would be foolish indeed to use that feeding, as her mind is already made up and any other method would be more advisable.

While many things enter into successful infant feeding beside a supply of pure milk, that, of course, is to be considered first. Poor milk is perhaps the cause of most of the deaths due to the fact that it is easily decomposed and an excellent media for bacterial growth; since it is difficult to transport and deliver in a clean, satisfactory condition which will insure its keeping, lactic acid milk has forged ahead rapidly. After lactic acid has been added, the milk will keep at ordinary room temperature and bacteria will not grow in it. For that reason lactic acid milk makes an ideal summer food for this part of the country and that alone is sufficient evidence of its superiority over sweet milk, without considering the buffer substance of cow's milk being neutralized and the baby receiving more calories.

Of late I have been using evaporated milk, acidified, and find that it has its advantages. It is easier to prepare this as there is no boiling and there is no scum to clog the nipple. The fat globules are finely divided and cream does not rise to the top of the milk mixture. When fat is evenly distributed throughout the mixture, it is more easily digested. As protein is a tissue builder of the milk it is an important factor in infant feeding. This value has not been destroyed in any way and is readily digested and perfectly metabolized. The vitamins seem to be as staple in evaporated milk as in mother's or raw cow's milk, but it is quite necessary to add the extra vitamins as you would if the baby were wholly on the breast.

Summer diarrhea is purely a preventable disease, and the reduction in mortality has

been done through prevention. Much has been accomplished by later methods of treating these conditions as overcoming dehydration with saline or Ringer's solution intraperitoneally; the use of glucose and blood transfusion, either citrated or direct method. The stools may be almost normal but still these babies die of severe toxemia.

Conclusions:—Pediatrics is a practice of preventive medicine.

First, by building up a resistance in the child that he may overcome disease.

Second, by the early removal of all foci of infection that the child may not be handicapped with an organic complication.

Third, by educating the parent in regard to diet, dress, flies and other things which may lower the child's resistance during the hot summer months and in so doing prevent the dreaded summer diarrhea.

# JEJUNOSTOMY—INDICATIONS —TECHNIQUE\*

# A. L. Blesh, M.D., F.A.C.S. Oklahoma City Clinic OKLAHOMA CITY

In watching patients die from so-called paralytic ileus, operative or otherwise, mechanical ileus and acute diffuse peritonitis, the careful observer cannot but be struck squarely by the similarity of the clinical picture. All of them are the deaths of *intestinal obstruction*, the picture of which need not be portrayed here to this audience for unfortunately all of you have seen it only too often.

Advisedly, the writer said "operative or otherwise" in referring to paralytic ileus. This type of ileus may appear in diseases entirely non-surgical. Personally it has been observed post-partum, in pneumonia and other diseases explain it as you will, indirectly through the sympathetic nervous system or directly by irritation of peritoneal membrane.

As the writer sees the indications for the operation of jejunostomy they are:

- 1. Ileus paralytic.
- 2. Ileus mechanical.
- 3. To supply nourishment and fluids in proximal leakages and obstructions.

- 4. To supply nourishment and fluids to the body in certain cases of incessant vomiting wherein everything is rejected and the patient is dehydrating and starving, such as hyperemesis gravidarium, etc.
- 5. Acute diffuse septic peritonitis.

#### ILEUS PARALYSIS—ADYNAMIC ILEUS

This condition following abdominal operation is always distressing, sometimes dangerous and occasionally fatal. While it lasts it constitutes as positive a hindrance as a mechanical obstruction. In advanced cases reverse peristalsis with fecal vomiting, that is, the vomiting of large quantities of regurgitated intestinal contents occur, so called acute post-operative dilatation of the stomach is in my opinion but a terminal phase of the clinical syndrome, except in those recurrent attacks of acute dilation due to duodenal obstruction by the musculus suspensorius duodeni and the superior mesenteric artery—that syndrome known as gastro-duodeno-mesenteric ileus. In fact this very condition is sometimes precipitated by the post-operative paresis and is relieved by the stomach tube.

Adynamic ileus in its advanced stages is just as surely an obstruction of the bowels as is the mechanical form. It just as surely leads to regurgitant vomiting and toxemia. I am convinced by looking backward over my own work that preventable surgical deaths have been caused by this complication.

Relatively, ileus is rare in our work at the present time, due to preventative measures. Just what do we mean by prevention? We mean: (1) Preoperative preparation which above all things does not mean cathartics, but the most studied avoidance of them. (2) Anesthesia which is rarely profound and consists in local alone of local plus gas, either, nitrous oxide or ethylene. The anesthetic administered by a trained an esthetist who is instructed that if there is to "be a fight, let the surgeon have it." The refractory patient is not to be whipped down with an overwhelming dose of anesthesia. (3) Gentleness in operative manipulation of abdominal viscera and no atmospheric exposure. Hot saline packs are better than no protection, but there is no shelter for the abdominal organs equal to the abdominal cavity. If force is necessary to deliver, it is far better to carry the operation to the organ rather than the organ to the operation, but is more difficult. (4) Reason-

<sup>\*</sup>Presented before Surgical Section, Meeting of Oklahoma State Medical Association, Tulsa, May, 1928.

able speed without haste. Unquestionably, the more prolonged the operation, the more the exposure; the more the manipulation, the greater the liklihood of all kinds of complications including paresis.

To be sure all this is prevention, but certainly well worthy of consideration:

ILLUSTRATIVE CASE REPORT—ADYNAMIC ILEUS—POST-OPERATIVE

G. N. W., male, 61 years of age, consulted the clinic first, April, 1926.

Family History: No bearing. Personal History: No bearing.

Consults clinic for attacks of severe cramp-like epigastric pain requiring hypodermics of morphine for relief. These attacks began six years ago and have been increasing in severity until of late they recur as often as every two weeks. Pain is transmitted to scapular region, so severe that collapse often follows. Very little if any fever.

Physical Examination: Shows a fairly well nourished, large framed man, temperature 99, pulse 96, blood pressure 110-80. Pupillary and general reflexes are negative. Glandular system negative. Mouth: pyorrhoea with recession of gums, tonsils submerged and infected, sclera shows a slight icteric tinge. Chest: heart tones distant, no murmurs, lungs are negative. There is marked tenderness over the right epigastrium to both pressure and fist percussion. Liver and spleen not palpable. Eyes: left shows pterygium. Ears: drums whitened, hearing impaired. Urinalysis was negative.

Diagnosis: 1, pterygium left; 2, pyorrhoea; 3, tonsillitis, chronic, infected; 4, appendicitis, chronic catarrhal, recurrent; 5, cholecystitis, chronic, catarrhal recurrent with stones.

Advice: Pterygeo-mectomy, tonsillectomy, extraction of teeth, cholecystectomy.

Operation at this time refused.

Patient again consulted the clinic July, 1927, after just having had the most severe attack of all, ready for operation.

Operation: July 12, 1927, appendectomy, cholecystostomy.

Operative Remarks: Great rigidity and resistance which could not be safely overcome with the anesthesia was encountered. The gall bladder was deeply situated and contained many millet-seed and cherrypit sized biliverdin stones with putty-like debris. Under these conditions, the diffi-

culties and dangers of a cholecystectomy would have more than counter-balanced a drainage so a cholecystostomy was done. Massive old and organized adhesions were found in the appendiceal region indicating that at some time in the past, this patient had had an acute appendicitis with local peritonitis. An appendiceal stump was found and removed. Drain carried to the region and the abdomen closed with considerable difficulty. Operation from beginning to finish was difficult and required much manipulation.

Postoperative notes on this case shows that for two days convalescence was normal. On the third day the records show this entry: "distension of bowels from intestinal paresis which began early this morning, continued to increase throughout the day until 10:00 p. m., regurgitant vomiting began, condition critical."

An attempt at lavage failed, patient resisting. Condition becoming very dangerous, a jejunostomy was decided upon after consultation with Drs. Rucks and Robinson of the clinic.

This was done by the writer under local anesthesia by the bedside. A tube was placed in the jejunum with immediate escape of large volumes of gas, the patient expressing immediate relief. The next day the following note appeared on the record: "Improvement marked, gas and fecal matter discharging freely through tube, vomiting has ceased, pulse slowing. Evening improvement very marked."

Convalescence from this time on uninterupted.

*Ileus Mechanical*: It is not the purpose of this paper to enter into the many causes of mechanical ileus. The results of all are the same. In passing it may be remarked that the higher the obstruction, the more acute the case. Also in differentiating mechanical from paretic ileus, one should always recall that in the beginning because of the strenuous efforts of the bowels to drive past the obstruction, the abdomen is extremely noisy and will continue so until the obstruction is overcome or intestinal paralysis ensues, while in the latter the belly is as silent as the grave from the start. In the late stage it is impossible to differentiate except from the history.

Unfortunately the majority of cases are brought to operation late. Nor can we who have the advantage of observing cases in well equipped hospitals escape this criticism. Many post-operative and peritonitic cases are permitted to die from toxemia because of surgical cowardice.

In all cases of obstruction of the bowels whether paralytic or mechanical, there is a blood shortage in chlorides and calcium as shown by the work of Orr and Hayden, and this in turn chokes down the kidney excretion. Duodenal and jejunal stasis breeds exceedingly active and poisonous toxins elaborated from the pancreatic gastric, duodenal and jejunal secretion. The action of these toxins are well known although they have never been isolated, their action is noted late in low, early in high obstructions.

Also the relief in jejunostomy is prompt in contrast to delayed relief in low ileostomy. The reason is that immediate and direct drainage is offered to the pent up poisonous products by jejunostomy while delayed and indirect drainage is offered by low intestinal openings. Such low drainages are also dependent to a great extent on a slowly awakening peristalsis in a paralyzed gut.

The blood shortage in chlorides and calcium can and should be made up as advised by Orr and Hayden. This will often carry the patient over the critical stage.

It is only in late obstructions the jejunostomy is advocated. Early obstructions, while the patient is in good condition, should be dealt with radically. The late cases are to be dealt with as two-step operations, the first step of which is the intestinal drainage and the second step the relief of the obstruction.

Jejunostomy offers a clean field for this as against an infectious field in low ileostomies, since the large majority of obstructions are low ileal.

# SUPPLYING NOURISHMENT AND FLUIDS IN PROXIMAL LEAKAGES

While the third indication—supplying nourishment and fluids in proximal leakages—is rare, still, as a surgical accident it will occur. In my own personal experience I have seen three duodenal fistulae, the patients dying, and which probably could have been saved by a timely jejunostomy. Duodenal fistulae occurring in the extra-peritoneal portion of the duodenum, such as some times follow the removal of an adherent right kidney constitutes a real surgical problem, in that the patient rapidly dehydrates and starves. Because of being uncovered by the peritoneum its surgical repair is difficult. Receiving the output of pancreas, stomach and liver, physiological rest of the duodenum is impossible. Whatever is put into the stomach, pours out of the fistula. An early jejunostomy will supply fluids and food and thus give the surgeon a chance.

What is true of leakages is also true of obstructions in this location. But mostly it is to be utilized as a palliative in such gastric or low esophageal obstructions as occur in malignancies. When and where it is possible to do a palliative gastro-jejunostomy it should be given the preference.

# TO SUPPLY FLUIDS IN PATIENTS DEHYDRAT-ING AND STARVING FROM PERNICIOUS TYPES OF VOMITING

The fourth indication—to supply fluids in patients dehydrating and starving from pernicious types of vomiting—is approached with some trepidation. I broach this indication tentatively. There is a field for argument here. I have not tried it as I have in all the other indications already and yet to be mentioned. But all will agree with me that the urgent call is for fluids in this condition. With a supply of fluids, these patients may be tided over, without it many of them die. All of us will agree, too, that intravenous, subcutaneous and rectal administration while invaluable, have their limitations.

If an operation can be carried to the patient without mortality, morbidity or shock which will supply this need for sufficiently long time it seems to me some of these patients otherwise doomed, may be saved.

As stated, this proposal and argument is as yet purely acedemic, since so far as I know, it has never been tried for this condition.

# ACUTE DIFFUSE SEPTIC PERITONITIS

The fifth indication—acute diffuse septic peritoritis. Results in the treatment of this most formidable disease can yet be improved. While results of modern treatment are far superior to the old plan of management, the death rate by and large is still not far from 20 per cent.

Death is not due to the absorption of inflammatory products, nor to the extent of the inflammation as was formerly believed. It comes about through the absorption of pent up duodenal secretions precisely as it does from obstruction of the bowels. There can be no more complete obstruction than that of an intestinal paresis due to an acute spreading peritoneal inflammation. The most violent cathartics will not incite

peristalsis. This was learned at the time some 30 years ago when the saline treatment was being urged. It was found that this treatment only hastened the end. Without peristalsis, there is no intestinal movement.

The logical thing to do is to drain the toxic material. Also with the complete stasis, gas forms rapidly which still further distends the paralyzed bowel. The course of peritonitis is first a retracted, hard belly, next a distended abdomen not so hard.

### ILLUSTRATIVE CASE

G. E., boy, 17 years of age, brought to Wesley Hospital under the care of the clinic, February 26, 1928.

Family history and personal history: Negative.

Present attacks began three days ago with diffuse abdominal pains, nausea, vomiting and tenderness. This pain soon localized in the right lower quadrant. The patient is a well developed boy, temperature 101.2, pulse 100, respiration 21. General physical examination was negative except marked rigidity and tenderness in the right lower quadrant. No masses palpable. White blood count 31,100; Polys 93; S.L.3; L.L. 4. Diagnosis: Appendicitis, acute suppurative. Operation: Immediate appendectomy, 4-inch semilunaris incision, drainage, anesthetic, ethylene and oxygen with local.

Operative Remarks: The appendix was fixed, retrocecal, gangrenous throughout, with abscess fromation. Because of the infection, no further exploration of the abdomen was made. Before bringing up the appendix and opening the abscess the abdomen was carefully cofferdammed with gauze, making the protection of the cavity complete. Drain carried to appendiceal stump.

Postoperative note four days later: "March 1, 1928, patient's condition not good, abdomen is much distended, muscles rigid, diffuse general peritonitis, restless. pulse 130, temperature 100, condition extremely critical. At bedside a jejunostomy was done. Large quantities of gas escaped with immediate relief. Intestines and peritoneum agglutinated, dusky red in hue."

Fecal matter soon followed the gas and the patient convalesced uneventfully up to March 13, 1928, when this entry appeared: "Wounds dressed, drainage less, right incision strapped, Balsam Peru applied, complaining of paroxysmal abdominal pain, vomited."

These attacks which were diagnosed as partial obstruction of the bowels were treated successfully by enemata until March 21, 1928, this entry appears: "After repeated attacks of acute partial obstruction of the bowels within the past 24 hours, this has become complete and has been associated with copious fecal vomiting, these attacks have followed temporary closure of the jejunostomy opening. This has been completely closed for the past 48 hours, during which time this attack has appeared, developed and become complete. A low median, 2-inch abdominal incision was made under local anesthesia with the patient lying in bed and a low ileostomy was done. No search made for obstruction. Patient was pulseless and in collapse. Gas and fecal matter began escaping immediately.

It was noticeable that the relief was not so immediate as in jejunostomy. The reason: poisonous material must be drained through entire length of gut to ileostomy before escaping. At this writing patient is doing well, but another operation will have to be done to relieve the obstruction. It was notable that the inflammation had all subsided.

This case proved beyond question the life-saving character of the jejunostomy in a patient practically hopeless. It also shows the relative relief following a high and low enterostomy.

## TECHNIQUE

Any patient requiring an enterostomy of any kind is usually a precarious surgical risk. If the patient is seen early enough that he is a good risk, a complete operation is indicated and is to be planned.

It is clear then that the operation should carry no shock. Every energy of the patient must be conserved. First of all then, the patient is not to be transported to the operating room, the operation should be carried to the patient and not the patient to the operation.

Of equal importance is the anesthetic. It is *never* to be general; all general anesthetics are like an overdose of medicine in that they waste and do not conserve a certain amount of the patients' vitality—chloroform the most, ether next, gas and oxygen least of all, but in these exhausted, almost dying patients, a featherweight is often sufficient to break the balance in the scale.

The mastery of local anesthesia is here fundamental. It combined with "surgical strategy" and bedside operating will often safely carry the patient across the *tight* rope spanning the gulf of danger.

When a jejunostomy has served its purpose, it must be so made that it will spontaneously close with minimal damage to bowel and with such adhesions as may ensue not of the damaging kind. For years, the writer has been emphasizing that adhesions *per se* are of no consequence. That only when they "obstruct a hollow viscus or compress a sensitive organ are they to be feared."

Coffey of Portland has pointed out the fact that all the ducts of the body take an oblique course through the walls of the viscus with which they communicate and into which they discharge their secretions, this insures no reflux back into the organ or discharging viscus. The only time the duct is open is when it is discharging. The greater the pressure in the receiving viscus, the tighter is the duct closed. On this principle he has made the first uniformly s u c c e s s f u l one-step uretero-sigmoidal transplantations.

The same technique is to be applied in doing a jejunostomy.

An incision of a few inches in length is carried down the left linea semilunaris from the point of the 10th rib. The loop of the bowel presenting is jejunum. It can be recognized from its greater size and the greater thickness of its walls. This loop is now gently coaxed out through the incision. An incision of its wall, an inch to an inch and a half is made opposite the mesenteric attachment, is carried through all the coats down to the mucosa. At the distal end of this incision an opening large enough to admit an average sized adult soft rubber urethral catheter which is introduced and secured by a purse string inverting and fixing suture. The catheter is low laid along the gutter and Lemberted under the length of the incision. An opening is made through the transverse mesocolon through which the free end of the catheter is drawn and the abdominal incision closed with the catheter protruding.

The free end may be connected to rubber tubing sufficient that the end may rest in a jar of water at the bed-side and escaping gas noted.

Fluids and liquid foods may be given through the tube as indicated.

# SOME POINTS IN THE USE OF LOCAL ANAESTHESIA\*

A. S. RISSER, M.D., F.A.C.S. BLACKWELL

I shall discuss a few "points" in the use of local anaesthesia under four headings, namely: (1) The Motives for the Use of Local Anaesthesia; (2) The Materials; (3) The Means, and (4) The Methods.

First, The Motives: Frankly, this paper is dictated by a desire to popularize the use of local anaesthesia, to stimulate study of its indications and advantages in a far wider range of surgical conditions than, it is to be feared, many surgeons appreciate as possible. The writer is tempted to say at the outset that he believes the wider application of local anaesthesia is as great an advantage in the field of surgery as was the discovery of the general anaesthetics. In my opinion we are only at the threshold of the possibilities of legitimate local anaesthesia. For even today the pioneer who has become the master can thus with ease and comfort perform complicated and difficult operations which the novice and the uninstructed surgeon dare not even attempt. The writer has faith to believe that in the not distant future we shall find means and methods of local anaesthesia which will make feasible many more operations which as yet are outside the range of our possibilities. But for the realization of this desirable accomplishment we shall need further study, research, experience. new recruits, and more surgeons who are willing to acquire the art.

For the application of local anaesthesia is an art as well as a science and its acquirement demands a willingness to learn its requirements. It is true there are difficulties to be overcome in mastering the refinements of the technique, but the difficulties can be overcome, the fine points can be learned, and it behooves those of us who desire to be in the forefront of medical progress to make larger use of this means of anaesthesia. I believe the day is not far distant when those in charge of our medical schools will give courses in the teaching of, and training for local anaesthesia as an essential and fundamental requirement of the medical curriculum.

If it be maintained that local anaesthesia

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has its discomforts for the patient, that it is more time-consuming and demanding of nervous energy for the surgeon, it is equally true that the surgeon has no rights as regards his own ease and the rapidity of operation when those rights run contrary to the safety of the patient. The patient's welfare is—or should be—our only consideration. If the best interests of the patient would be furthered by local anaesthesia, and the operation can be done efficiently under local anaesthesia, without too great discomfort during the operation, the surgeon has no choice but to make use of this method. It is an established fact that ether and chloroform often give rise to toxic and degenerative processes both immediate and late, that the cerebral congestion, the resultant nausea and vomiting, gastric and intestinal stasis, are serious disadvantages; their effect in reducing the alkalinity of the blood and in causing acidosis may be fatal; their use necessitates a larger nursing staff and more troublesome after-care with more cost to physicians, hospital and patient. There is a most striking difference in the post operative condition of the patient, operated under local anaesthesia and the average ether patient. The aspect of utter misery, the nausea, straining and vomiting are replaced by one of well-being and comparative comfort. The necessity of gastric lavage, of the Murphy drip and intravenous medication are reduced to a minimum. This is of particular advantage to those of us who are "on our own" in smaller communities in charge of hospitals and without the services of expert anaesthetists and assistants. Judging from my own experience I believe if in a surgical hospital all operations were done under local anaesthesia the nursing force could be reduced a third or a half with advantage to the best interests of the patients.

As regards Materials — anaesthetic drugs—there is this to say: The drug must be of such character and it must be administered in such manner that it really produces anaesthesia. In other words, the anaesthetic must anaesthetize. Psycho-anaesthesia is efficient only to a minor degree. To measure the method of local anaesthesia by the endurance of the patient is unfair, for many individuals will not endure pain—and real anaesthesia is essential to the comfortable and successful performance of operations. Furthermore, our local anaesthetic substances must be safer than the general anaesthetics, else there would be no point in using them.

Scientific tests and clinical experience indicate that the average surgeon can well limit himself to novocaine—and perhaps quinine and urea hydrochloride for its prolonged after effect. These have the highest ratio of anaesthetic action to toxicity. Incidentally, it is my belief that the use of cocaine should be limited to surface applications for intranasal operations, combined with adrenalin for its hemostatic action and its influence of prolonging the anaesthesia. Novocaine and quinine urea provide all the essential drugs. They are safe, easily obtained, and suitable for practically all purposes, and can be used in large amounts (we have given more than 100 cc. in 1-2 per cent solution) and the average surgeon needs to experiment with no others.

The Means of administration of our meterials may range from the simplest to the most elaborate. As a rule, the simpler the better. Good, non-leaking syringes, 5 to 20 cc. capacity, preferably of glass but with metal plunger, so made that they can be easily, yet firmly held in the hand, with sharp needles of various lengths as small in calibre (20 to 23 gage) as is consistent with their length, and with an open lumen, these are requisite. Other essentials are a knowledge of neural anatomy and ability to locate the bony and other landmarks of the body. There is required further the ability to instil confidence into the mind of the patient as well as to inject anaesthetic substance into his tissues. There is no question that the sensitiveness of the patient to pain is largely dependent on psychic; on apprehension and fear—and the ability of the surgeon to dispel these will to a large extent spell the measure of his success with local anaesthesia. Patience and gentleness both with the patient's mind and with his tissues and organs is needed.

In fact, if it were not for fear of discouraging possibly the timid and slothful and fearful from seeking to acquire the necessary skill, I would say that for the successful use of local anaesthesia we must develop and employ a new technique in our surgery, one of gentle intelligent handling of tissues and organs. We need to cultivate a new respect and reverence for these: we need to develop a deliberateness and to have a prevision of the results of each step in the procedure. Assistants, also, need to be trained in the new technique. Only too often an unskilled movement, unnecessary roughness, even a tactless word can prevent the successful completion of an

operation under local anaesthesia. Nor is the average assistant (nor anaesthetist) a competent psycho-anaesthetist, usually; mere verbosity does not satisfy the requirements, and not every would-be-assistant is willing to devote himself to acquiring the assistants' instinct. It is desirable to develop such an assurance of technique in administering local anaesthesia that it will not be necessary to inquire constantly of the patient: "Does this hurt?" The surgeons' knowledge of his materials and their proper use, combined with a knowledge of the nerve supply of the region and skill in the method of administration should make him certain that sensibility has been abolished in the operative field previous to each advancing stage of the operation. For example: arteries and veins should be seen and clamped before division. It does not add to the equanimity of the patient to see blood spurting from his body over the surgeon and his surroundings, nor to hear it drip upon the floor or in the waste pan. And in dividing vessels of any size, we need to remember that they are usually accompanied by nerves which resent division unless they have been anaesthetized.

It is essential in the use of local anaesthesia for the surgeon to have in mind a definite plan of procedure, to be able to foresee the need and the result of each step in the course of the operation. In other words, we must have in mind a logical sequence of action. Necessarily, the field of anaesthesia is relatively small, and unanaesthetized tissues outside the field of anaesthesia do not tolerate pulling and hauling and other inconsiderate treatment. For example: the viscera are in general non-sensitive, but tension on pedicle or mesentary is painful. Thus, the use of local anaesthesia presupposes and stimulates a more careful preoperative diagnosis, and weighing of clinical and laboratory findings, and makes it necessary for us to have a mental picture of the pathology which we plan to correct. Thus, the use of local anaesthesia makes for more painstaking, careful, conscientious care in preoperative diagnosis, demands more attention to detail in the operation. It allows more meticulous work, will make for better surgery and more skillful surgeons, and saves the patient extra burden of dehydration and the toxic action of the general anaesthetics. Hence, it is essential that by visiting clinics, by observation, reading and research, experiment and experience we perfect ourselves in the art and technique of local anaesthesia.

Preliminary preparation for local anaesthesia requires practically no restriction of food and fluids. This is a boon to many starved and dehydrated individuals with diminished alkalinity and vital resistance.

A restful night preceding the operation contributes greatly to the comfort and success of the operation. The bromides, combined with chloral, codein, luminal, allonal and barbital are all of value. Morphine may be given in small does, but this is so inclined to cause nausea, vomiting and constipation that I use it rather sparing Commisserating friends and sorrowing relatives should be excluded in order to diminish psychic and emotional disturbances. Repeated and tactful reassurance of the patient promotes confidence, especially, if it can be provided by a former patient who has had a satisfactory local anaesthesia for the same or a similar oper-The surgeon can truthfully tell the patient that for many operations a general anaesthetic is practically the only element of risk and in electing local anaesthesia he had chosen safety.

In the operating room quiet should be maintained. The clatter of pans and noise of instruments are disturbing to many patients and should not be permitted. Attendants must refrain from discussing the steps of operation, from commenting on or criticising patients' anatomy or conduct or pathology, nor should debates between spectators, even though they are visiting physicians, be allowed as to the relative safety or comfort of general and local anaesthesia. Comfort on the operating table should be provided; soft pads, and sufficient drapes, particularly in perineal and rectal operations, to show due regard for the comfort and modesty of patients.

As regards Methods of Administration, there are a few fundamental principles which must be observed. Perhaps, first is to avoid multiple punctures in unanaesthetized skin. By using a fairly long needle and slow subdermal infiltration from a primary wheal, extensive areas and lines of skin may be painlessly anaesthetized and blocked off. Inflamed and infected areas, such as abscesses, boils, and carbuncles, should be slowly injected or circum-injected from healthy skin. The skin of the palms of the hands and soles of the feet should be injected from the side or dorsum of the extremity. When making deep infiltrations in the vicinity of large vessels or into the peritoneum the needle should be advanced slowly, making continuous injection, or the aspiration test may be made occasionally. With a small needle there is thus little danger of damaging blood vessels or intestines. With repeated practice one may learn by the "feel" of the needle to differentiate the layers as the needle penetrates them.

It is not my desire to make a mere "catalogue of ships"—to give simply a citation of operations in which local anaesthesia is possible, but a further word seems necessary to illustrate the wide range of applicability in the various parts of the body. I would maintain at the outset that all minor operations, — those in which the risks of the anaesthetic are out of proportion to the importance, extent, or severity of the operation, should be done under local anaesthesia. Thus, boils and carbuncles, the removal of foreign bodies and new growths, amputation of fingers and toes, even of hand and foot, hallux valgus, various dislocations, many fractures, both closed and open, even of the head, the mastoid operation, are easily done under local anaesthesia. Septal, turbinate and sinus operations, tonsillectomy and tracheotomy even in children, laryngotomy and laryngectomy, cancer of the lip with block dissection of the neck, all are perfectly feasible under local anaesthesia.

Many surgeons are now doing most of their goitre operations under local anaesthesia, in part because of the greater safety, in part because many patients prefer this method. It is of special importance in preliminary ligations that our anaesthesia should be perfect in order to win the patients' confidence for further ligation or later removal of the gland. Operations on chest wall and thorax lend themselves well to local anaesthesia (which is fortunate), for many patients requiring such operations are poor risks, and the very real danger of lung complications following general anaesthesia are thus avoided. Thus in empyema, acute and chronic—and at all ages, and in lung abscess, and even for multiple rib resection, local anaesthesia should usually be the method of choice. Benign tumors of the breast—even mammary cancer with axillary dissection can be successfully done under local anaesthesia (paravertebral and brachial plexus block). But in breast cancer the usual fair condition of the patient makes the rather complicated method a burden and of doubtful urgency.

For many abdominal operations local anaesthesia should be the method of choice.

Practically all hernias, of whatever origin, location or type, even with extensive omental, intestinal adhesions can be readily operated by this means. With care in the dissection, some supplemental injections, with good exposure and good light, adhesions may be separated, redundant and adherent omentum can be resected, and extensive plastics done without distress or discomfort or danger. I have several times done an extensive resection of panniculus in pendulous abdomen with the repair of umbilical or other hernia, removing by this means pounds of abdominal weight.

Congenital hypertrophic plyoric stenosis, typhoid perforation, appendiceal abscess, enterostomy in obstruction, gastrostomy, and gastroduodenostomy, these are all amenable to local anaesthesia properly administered. Many cases of gall bladder and gall duct disease can be operated under local anaesthesia. Exploratory abdominal section for suspected malignancy, while rarely necessary now because of refined methods and means of diagnosis, need scarcely ever be done under general anaesthesia, since anemia and cachexia are so often present, and likely to be aggravated by the general anaesthetics. The operation for ruptured tubal pregnancy, the drainage of pelvic abscess and pyosalpinx form a good and legitimate field for the employment of local anaesthesia. Drainage of the bladder, removal of bladder stone and prostatectomy can be readily done under combined regional and sacral anaesthesia. Likewise, in my experience, cesarean section has been so satisfactory by this method that one patient remarked it was "the easiest way to have a bady." Under combined sacral (caudal) and regional anaesthesia the various plastic operations on uterus, vagina, and perineum are easily possible. By this method the author has done dilatation, curettement, trachelorraphy, anterior colporraphy, perineorraphy, appendectomy with a modified Gilliam operation. The patients not only survived but were extremely grateful to have escaped the discomforts of a general anaesthetic. In cases of incomplete or septic abortion, where the patients are exsanguinated or toxic, curettment can with great advantage be performed under sacral anaesthesia. Likewise, all operations about the rectum, hemorrhoids, ulcer, fissure, ischio-rectal abscess, fistula, prolapsus, even extensive resection of the rectum, can be done comfortably and with greater safety by means of regional or sacral anaesthesia. It may be remarked that a very potent reason for our patients patronizing advertising quacks and so-called "specialists" for the treatment of rectal diseases is the very great opposition to undergo general anaesthesia (for the cure of these diseases). "No detention from business"-"Without the use of the knife"—"Not necessary to take an anaesthetic"—"No hospital stay necessary" — these are catch words to induce repeated and prolonged and expensive office treatments at the hands of these pseudo-specialists. We need to learn that practically every form of rectal operation can be readily and comfortably performed under local or sacral anaesthesia, to inform the public of that fact and to perfect ourselves in the art of administering this great boon, not only in rectal but in the many other legitimate fields, as I have tried (though hastily and briefly), to outline.

# A PATIENT OR A CASE\*

FRED S. CLINTON, M.D., F.A.C.S. TULSA

A complex condition of society is developing. The splitting up of basic or fundamental service into specialties seems to invite a sort of detached mechanical method of doing things. The passing of the old family physician whose intimate knowledge of all the members of a family and their personalities, attachments, business and home atmosphere, etc., and the use of nurses, technician, and laboratories to collect, classify, interpret and determine the relative importance of presenting symptoms and even make the final analysis or diagnosis and suggested treatment without a co-ordinating mind to correlate everything connected with the condition is all too common. We may be absorbing and reflecting the mechanical age in which we live. The case is becoming isolated and detached from the patient. After many years of experience and observation I wish to make but one point in this brief discussion of the subject—"A Patient or a Case." Pope has said "the proper study of mankind is man." Sir William Osler has often quoted "Old Doctor Pary, of Bath," "It is much more important to know what sort of patient has a disease that what sort of disease the patient has."

The mechanical contrivances, instruments of precision, reagents, etc., are all

unthinking and unreasoning creatures, which should be servants and not masters. They should be aids under control and not be permitted to dominate from their detached position.

This day of education and growing intelligence makes quite important the careful consideration of the chief complaint of the patient who seeks relief and compels attention to the recognition of the entire individual and all of his relations to life.

While we call to our aid anatomy, physiology, psychology, living pathology and immunity, we must emphasize the study of man and his relation to life and environment. His entire personality must be considered to render the greatest medical service. Coleridge says: "Personality is individuality existing in itself, but with a nature as a ground." We must study and evaluate the patient as an individual human being and skillfully gain his full confidence to secure an early and timely diagnosis in many diseases. The mind—man must be studied with the same care devoted to the external forces or disease agents such as trauma, bacteria, etc.

Dr. William Joseph Jones, of Crazet, Va., relates this incident to illustrate the physicians' sympathy as psychologic remedy of great value in the treatment of disease when properly applied with a sympathetic understanding:

"About forty years ago, I had a hurried morning call to visit a baby six or eight months old, said to be dangerously ill. It was the first child of one who had arrived at the mile post a few years after young maidenhood, when she married a widower of age and experience. On my arrival she met me at the door with the baby in her arms. Her first words were, 'Doctor, I fear that you cannot properly examine my baby.' It was screaming and writhing as if in great pain. I said, I think I can. You sit down and calm yourself. She said that the baby would not leave her a minute and that it had suffered since midnight. I talked quietly and sympathetically to the mother. The baby watched me and listened. In ten minutes it had ceased screaming and writhing and, after permitting it to inspect me until I thought it was satisfied, I held out my hands. It came to me and nestled in my arms, the arms of a loving father. It was soon asleep and I delivered it to its mother. I held out my

<sup>\*</sup>Presented, Oklahoma State Medical Association, Thirty-sixth Annual Session, Tulsa, May, 1928.

hand to say good-bye. The other words were, your baby is not sick and therefore does not require medicine. It is now well. Do not forget what you have learned."

Kipling says in his splendid poem, "Our Fathers of Old":

If it be certain, as Galen says—
And sage Hippocrates holds as much—
"That those afflicted by doubts and dismays
Are mightily helped by a dead man's touch",
Then, be good to us, stars above!
Then, be good to us, herbs below!
We are afflicted by what we can prove—

We are afflicted by what we can prove—
We are distracted by what we know.
So—ah, so.

Down from your heaven or up from your mould, Send us the hearts of our fathers of old!

THE ACUTE SURGICAL ABDOMEN\*

FRANK H. McGregor, M.D., M.C.
The Border Hospital,
MANGUM

Gentlemen: I wish to thank you for the honor accorded me in inviting me to appear on your program. I assure you it is not only a pleasure, but a privilege. I recall that on two other occassions I have been so invited but due to circumstances over which I had no control, I could not avail myself of this privilege. Dr. Moss called me and invited me to come over. I set to work immediately to so arrange my work that, barring providential hindrance I would be present here today.

For my subject, I have tried to choose a condition or conditions rather, free discussion of which I believe will benefit the greatest number present.

In discussing the "Acute Surgical Abdomen" it is not my intention to enumerate or discuss every acute abdominal condition that might arise, but to confine myself to the more common and frequent conditions with which we, as physicians and surgeons come in almost daily contact. In this section of the country especially, the most frequent acute surgical abdomen is due to acute appendicitis. Notwithstanding the fact that its symptoms in a typical case have become so well known that the family often make the diagnosis before the arrival of the physician, the death rate each year is still appalling. when if we did our full duty, barring the exceptional case where the family is so unreasonable as to absolutely refuse operation, our death rate should be nil.

I will admit that in some cases of the fulminating type it is rather difficult to make a differential diagnosis, but knowing the harmlessness of a clean appendiceal operation, we should always insist upon an immediate operation rather than wait for the case to differentiate itself. Quoting from my previous treatises on this subject, "It is far better to operate immediately and remove a normal or slightly affected appendix, than to wait and have a developed case of localized or general peritonitis with which to contend." Of course, this latter statement presumes the finding and correction, if surgical, of the real trouble at the time of operation in case the appendix is found not to be the cause of the abdominal distress.

Probably the next most frequent condition that calls for immediate operative interference, is empyema of the gall bladder, Fortunately the infected and disturbed gall bladder is not so liable to rupture as the equally affected appendix, but the potential danger is just as great, as every surgeon can testify, and an immediate operation should be insisted on in order to prevent the rupture with its often dire consequences.

Next in order comes the acute perforated ulcers of the stomach and duodenum, which calls for the quickest and most thorough operation possible if your patient's life is to be saved.

There is no other surgical condition wherein the time element bears such a direct ratio to recovery than in perforation of the acute ulcer. Another frequent condition that is almost on parity with acute perforation is complete intestinal obstruction, from any cause. Of course, we are all familiar with the obstructions that are due to inflammatory processes such as acute appendicitis, but I am now primarily speaking of the acute obstructive conditions per se that occur. Under this group may be mentioned the various ilei that occur from torsion, bands, constriction of hernial rings, true intussusception, etc. Always bearing in mind to expect the latter condition in children and the former in adults and post operative cases of any age.

In the female, in addition to the above mentioned conditions we have a variety of accidents that occur which we should always be alert to diagnose and institute

<sup>\*</sup>Read before the Four County (Texas) Medical Society at Wellington, Texas. March, 1928.

immediately the proper surgical treatment. In single women it is not at all unusual to find severe intra-abdominal hemorrhage from a ruptured haemorrhagic cyst. When this condition occurs with profuse haemorrhage the condition of the patient can become alarming in a very short time. The diagnosis in these cases as a rule is not so very easily made until the haemorrhage has become copious and the pulse shows unmistakable effect of the blood loss. I really believe that this condition happens in young girls of the menstrual age far more often than is generally believed.

In the married woman with a history of abnormal or atypical menses, acute pain in lower abdomen, etc., we should always be very thorough in our examination and be sure to eliminate a possible tubal or other form of ectopic pregnancy before giving a sedative and leaving the patient. This mistake is all too common and many an avoidable death has been permitted to take place, due to our laxity in making a thorough examination when the symptoms were still mild and obscure.

Now as stated in my opening remarks I have purposedly alluded only to the more common conditions which we can reasonably expect to meet any day. Of course, we should bear in mind the more infrequent abdominal lesions, such as mesenteric thrombosis, infarction of the bowel wall followed by necroses, the various types of intra-abdominal hernia, torsion of tumors, foating kidneys, wandering spleen, etc.

I have also refrained from going into the symptomatology of the various acute conditions which require immediate surgical treatment. This was done with the idea that a free discussion of symptoms by the members in open forum following this presentation would redound to the greatest good and would also allow the speaker to be benefited by receiving diagnostic aids from your own valuable experiences in this field.

In closing this short address, may I express the hope that you will each enter whole heartedly into discussion of the various aspects and phases of the subject. If you do this, I will be amply repaid for my efforts to stimulate your interest in carefulness and thoroughness in examinations, proper diagnosis and a stronger determination to see that the proper treatment be instituted as early as possible.

## ARTIFICIAL PNEUMOTHORAX

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The earliest record we have of artificial pneumothorax in the United States was that administered in 1894 by Dr. John B. Murphy of Chicago. About 1912 this treatment became more than an experiment, and today it is being used quite generally, especially in sanatoria, for the treatment of pulmonary tuberculosis.

The indications for an artificial pneumothorax are, first, persistent hemorrhage that does not yield to the ordinary methods used in stopping hemorrhages; second, unilateral infection of tuberculosis of the lungs that under the routine rest treatment has a tendency to remain stationary or progressive; third, as a last resort in bilateral cases to relieve annoying symptoms such as cough, expectoration, high fever, and night sweats when there is very doubtful prognosis of its being useful as a curative agent.

Success of an artificial pneumothorax will depend primarily upon the skill of the doctor in selecting cases that are suitable for the treatment, the patient's ability to cooperate thoroughly with the doctor in carrying out the rest program, and the constant checking of the patient's condition by physical examination, clinical history, and the fluoroscope and X-ray.

Nearly every operator has a different technique for administering artificial pneumothorax, but the usual technique is as follows: Place the patient on table with the side uppermost which you desire to collapse. I like to place a pillow under the side of the chest that is down. This practice seems to bring the ribs further apart and enables the operator to get the needle into the pleura with greater ease. Locate a place between the 5th and 6th ribs in the mid-axiliary line. This is then anaesthetized with 2 per cent procain, novocaine, apothesine, or some non-toxic local anaesthetic. I prefer apothesine, 2 per cent, a small amount of this drug being injected into the skin, producing a small wheal. A small caliber hypodermic needle about three-fourths of an inch long is then introduced into this wheal down between the ribs into the pleura, injecting solution as it goes. After allowing a few minutes to

elapse, a blunt 18-gauge needle is introduced, care being exercised not to puncture the inner pleura.

As mentioned before, technique varies in making the initial puncture, some operators preferring to make a small incision in the skin with a lancet, and extending the lancet on down between the ribs near the pleura.

The point for making the puncture into the pleura can not always be in a certain stated place because oftimes pleural adhesions prevent separating the two layers of the pleural sac, and some other site may allow the introduction of air. The site where the pleura seems to be most free, and where the needle does not have to pass through a great amount of muscle tissue, is ideal.

The skill used in performing this slight operation is of paramount importance on the initial puncture. After a successful puncture, the refills do not, as a rule, require so much careful attention.

There are various types of machines used in administering artificial pneumothorax, but most of them depend upon water flowing from one bottle into another to produce pressure to force the air into the pleural cavity. These two bottles should be graduated to determine accurately the amount of air that has been forced into the pleural space.

A very important part of the artificial pneumothorax apparatus is a correctly graduated manometer. It is necessary that this be accurate in order to know definitely the amount of positive or negative pressure in the pleural space. The manometer is a U-shaped glass tube with both legs of the U about ten inches long, and should be filled with water to a point one-half way up the U.

When the needle is in the pleural space oscillations will be noted on the manometer unless the caliber of the needle has become stopped with tissue or blood. If the needle enters the lung tissue the oscillations on the manometer do not have a wide variation from zero, and the introduction of air does not produce any change in the readings.

Most normal pleural spaces when first punctured will show between -1 or -2 on expiration, to -5 on inspiration. The object is to destroy gradually this negative pressure and produce a slightly positive pressure, somewhere around +1 or +2 being desirable.

In former years nitrogen gas was used to produce collapse, but for various reasons atmospheric air is now the agent used for this purpose. The most dangerous complication liable to arise from the administering of artificial pneumothorax is air-embolus and this is usually fatal. Occasionally there may be a shock following the puncture of the pleura which has varying degrees of severity, however, this condition rarely occurs when the anesthetic agent is properly injected.

The amount of compression to be used will depend upon circumstances. For instance, in giving artificial pneumothorax to control hemorrhage, the initial treatment requires a greater compression than is usually given when an ordinary pneumothorax is desired.

In giving an artificial pneumothorax in a unilateral tuberculosis of the lung it is advisable not to try to obtain any great amount of pneumothorax on the initial puncture, but to give small quantities of air every three or four days until the patient has become accustomed to the pressure, and the pleura can be punctured and the air forced in without any appreciable amount of pain. Ordinarily the initial puncture for patients of this type will not require over 150 to 200 cubic centimeters of air. This is repeated at intervals of three or four days until the manometer readings show that air is being retained, and that a positive pressure is being maintained. Then the treatment can be given at longer intervals from time to time. In treatment of this unilateral type of case it is not always advisable to try to get a complete collapse, the amount of collapse desired being dependent upon the patient's general condition and one's reaction to the treatment.

On account of these facts it is almost mandatory that a patient beginning an artificial pneumothorax should be in an institution where complete records are kept of each patient's progress, and where constant supervision of rest under competent personnel can be obtained. After a pneumothorax has been well established the constant care and checking of clinical and physical symptoms are not so necessary, and the patient can become an outpatient.

The length of time a lung should be kept in a collapsed state is a question the operator must decide. Some cases have been

known to take artificial pneumothorax at intervals varying from one to three or four months for a period of years. The general condition of the patient will be a guide in determining when to lessen the pressure, but ordinarily a collapse should be maintained long enough for sufficient fibrous tissue to form to hold the former diseased areas, and not allow expansion of that part of the lung. Some patients apparently form this fibrous tissue more quickly than others. If when gradually lessening the pressure on a lung a physical examination reveals rales, and clinical symptoms show increased activity of tuberculosis, the proper procedure would be to increase the pressure again.

Many times artificial pneumothorax is beneficial in treating a spontaneous pneumothorax of one or more lobes. It is also used in replacing fluid which has been withdrawn from the pleural cavity, to prevent shock from too rapid a relief from pressure.

Not all attempted pneumothoraces are successful. Sometimes adhesions are present between the two layers of the pleura which can not be separated, causing severe pain when pressure is introduced into the pleural space. When this condition is encountered and an attempt is made to force air into the pleural sac regardless of the adhesions, the air is apt to escape into the tissues and produce emphysema. This is very painful and annoying to the patient, but a doctor skilled in giving pneumothorax will rarely have this occur.

Sometimes after a pneumothorax is apparently well established fluid will form, and unless this fluid reaches a quantity that produces a great deal of annoyance, high fever, and night sweats, it is sometimes not best to interfere with it. If it becomes necessary the patient can be aspirated.

There is always a danger of this fluid containing tubercle bacilli and later forming an empyema, with the formation of adhesions and the plastering of the pleural surfaces to the point where artificial pneumothorax can no longer be given. This condition is usually caused by poor technique in administering artificial pneumothorax and should not occur very often.

Artificial pneumothorax sometimes produces wonderful results where it is desired to collapse a cavity when the walls of the cavity are in a condition that allows them to yield to pressure, and when they have

not reached a hardening stage. Treatment in a case of this type will reduce the amount of sputum and allay the cough.

Many times an artificial pneumothorax can be given where one lung is producing much of the toxemia without much untoward effect in the opposite lung, even though it is also diseased.

Some of the contra-indications for the use of artificial pneumothorax are first, moribund cases; second, cases that show an equal amount of involvement on both sides; third, cases that show a history of severe pleurisy on the side selected for the artificial pneumothorax; fourth, lungs that are of fibroid character that will not yield to the inter-pleural pressure.

If, during the course of treatment, a severe pleurisy develops, or if the refills become painful to any great extent, it is advisable to stop the treatment.



FIGURE 1 (Coal Miner)

Male, age 41, occupation coal miner. History on first examination, always been well until 1925 when diagnosed as having tuberculosis. Had some small hemorrhages, went to sanatorium for three months, after which he went back to work feeling good. Reentered sanatorium January 21, 1929, because of spitting blood every day for six weeks, weight 158, temperature ranging from 98 in the morning to 99.2 to 99.4 in the afternoon. Sputum

positive G2. Right lung showed increased whispered voice in apex, course rales after cough over entire lung, more marked around second and fourth ribs; left lung showed diminished breath sounds, no rales. Patient appeared to be almost exsanguinated.

Artificial pneumothorax was started January 24, 1929, on right side, 300 cc. of air being given on initial puncture, and treatments being given twice a week, 400 cc. of air being given each time. Blood one time showing in the sputum was old and dark in color, since pneumothorax started.

Radiograph shows sixty per cent collapse of the right lung March 6, 1929. Left lung shows numerous calcified areas but no evidence of activity. Weight of patient April 14, 1929, was 166 pounds, temperature from 98.6 to 99. Patient able to exercise without increasing temperature, and no evidence of blood in sputum.



FIGURE 2-A Condition on Admission

Female, married, age 20, occupation housewife. Gave history of a cold in 1927, which caused her to go to bed for three weeks, never fully recovering; pleurisy on right side for three weeks; normal weight 120 to 127 pounds; weight on admission July 17, 1928, was 105; temperature 104 with remissions to 100 for a few days and

then back to 104; sputum positive G3, on July 27, 1928; positive again in August and in September. Physical examination showed increased whispered voice apex, posterior, with few coarse rales; many coarse rales after cough in the base posterior; left lung showed harsh breath sounds from the base up, numerous rales after cough.

Radiograph shows extensive mottling and haziness throughout left lung with suggestion of cavity formation opposite second rib; right lung shows areas of infiltration throughout the lung; increased density of the hilus with areas of inflammatory process near the second rib. Diagnosis was bilateral tuberculosis, advanced, more active in left side.

Temperature improved on complete rest, with sudden rise to 102 on October 25. Initial puncture made in left side November 10, 1928, 200 cc. of air given. Fever immediately subsided to below normal averaging 98.2 to 98.4 and has not gone above normal since except a few days before menstrual period. Average amount of sputum on admission was two ounces daily. Since initial puncture sputum has been absent, and smear shows negative for the tubercle baccilli. Weight March 7, 131 pounds.

Figure 2-B shows lung condition five months after starting pneumothorax; al-



FIGURE 2-B
Picture Was Reversed and Shows Left Lung on
Left Side of Picture.

most a complete collapse, evidence of pleural adhesions around the second rib and fifth rib. Inflammatory process in the right lung opposite the second rib appears to be completely cleared up. Patient exercising extensively, dresses and walks two blocks to three meals a day.



FIGURE 3-A
Two Years After Initial Puncture

Female, age 24, occupation commercial teacher. History of glandular tuberculosis at six years of age, break down pulmonary tuberculosis at 18 years of age and again at 21. Entered sanatorium September 25, 1925, age 22; physical examination showed many coarse rales in upper lobe of left lung and few coarse rales in upper lobe of right lung; calcified areas scattered over both lungs; right lung healed under routine rest treatment but left lung remained progressive. Artificial pneumothorax was started March 1, 1927, 200 cc. of air being given on initial puncture.

Figure 3-A shows X-ray made February 8, 1928, almost two years after initial puncture, left lung practically completely collapsed, patient working as stenographer every day, 400 cc. of air being given every four weeks.

Figure 3-B shows the same lung, radiograph taken March 7, 1929, after the length of time between treatments had been

extended to six weeks, smaller amounts of air being given each treatment with the



FIGURE 3-B Lung Expanding Picture Was Reversed and Shows Left Lung on Left Side of Picture.

idea of allowing the lung to expand. Patient still working every day, lung almost completely expanded, especially from the third rib down. No signs of rales in either lung. All physical signs absent for over two years. Diagnosed as arrested case.

Figure 3-B shows the elapse of considerable time to prove the beneficial results that may be obtained by artificial pneumothorax where a patient does not respond readily to the ordinary routine treatment at the sanitorium.

GALL BLADDER FUNCTION AND ITS CLINICAL DETERMINATION.\*

W. P. NEILSON, M.D., D.N.B. ENID

Since the birth of anatomical and physiological investigation, gall bladder function has remained mysterious. Medical literature has been filled, since its establishment, with theoretical and practical considerations, regarding the role which the gall bladder might play in the process of metabolism as a whole. It is therefore necessary to first consider in this paper some of the physiological and anatomical aspects of the gall bladder, in order that

<sup>\*</sup>Read before the Garfield County Medical Society, Enid. Okla., Feb 27, 1929.

we may obtain a working hypothesis for further consideration.

The gall bladder is a pear shaped structure which lies on the under surface of the right lobe of the liver. Quite contrary to the dominating opinion, the position, size and shape of this structure are not constant. They are governed to some degree by the size and position of the individual and the relationship of its neighboring structures. Since the debut of cholecystography, it has been the frequent observation of many clinicians that a normal gall bladder shadow can be obtained when the structure occupies any one of many different positions. The gall bladder receives its nerve supply from the hepatic plexus, and its blood supply from the right hepatic artery by way of the cystic artery.

The right and left hepactic ducts unite to form the hepatic duct. The hepatic duct is joined by the cystic duct, which is continuous with the gall bladder; thus the common bile duct is formed. The common bile duct enters into the duodenum. It is necessary to understand that the common bile duct does not penetrate the duodenal wall directly, but enters and continues in an oblique manner. The distance traversed before actual penetration of the mucosa is 1-1.5 cm. Oddi, some years ago described a delicate muscular sphincter which attempts to surround the distal end of the common bile duct. This has since caused considerable discussion and comment regarding the responsibility which this structure might play in the process of gall bladder evacuation.

A cross section of the gall bladder wall shows it to be made up of five distinct histological layers. From outwards in; the serosa, subserosa, fibrous tissue layer, muscularis and mucosa.

Bile is secreted by the liver cells, transmitted through the right and left hepatic ducts into the hepatic duct, hence into the common bile duct. It then travels to the distal end of the common bile duct, which remains closed during fast. By a process of back pressure, it is forced through the cystic duct and stored in the gall bladder. If active digestion is going on at the time at least a portion of the bile empties into the duodenum without admittance to the gall bladder. Bile obtained from the gall bladder directly has been found to contain less water and more solids than bile obtained directly from the common bile duct.

From this fact we deduct one of the known functions of the gall bladder, it concentrates bile. Another proven function is, it stores bile. Surgeons, while doing abdominal operations always find the gall bladder partly filled, consequently, we are assured that some bile is virtually always stored in the gall bladder. The remaining function of the gall bladder which is widely conceded is, it expells its contents. Just how this is done is at present quite speculative. The first consideration was that the smooth muscle in the wall of the gall bladder contracts, during digestion, thus expelling its contents. The small amount of muscle in its wall and failure of this muscle to readily respond to external stimuli, caused this theory to fall into disrepute for a long time. The explanation substituted was a combination of factors. First during digestion, when peristaltic waves began the sphincter of Oddi relaxed and bile was admitted into the intestine. Secondly, the theory has been advanced, that there is a process of synergism completed which has an affinity for bile, acting somewhat as a hormone. This idea is based upon the demonstration of an increased bile flow when a large amount of fats are ingested. We know that bile salts are essential for the emulsification and digestion of fats. Thirdly, perhaps the gall bladder empties periodically in the response to changes in intra-abdominal pressure. Fourth, why could we not assume that gravity plays an important part by virtue of the position of the gall bladder in relation to its ducts and the intestine.

Bainbridge and Dale in 1905 and and Match in 1917 2 have demonstrated rythmical contractions of the gall bladder and have shown that the contractions were not due to respiratory movements, as other men had assumed them to be. Macht has also shown that the tonus and rate of contractions of excised gall bladder of the cat and dog are increased when morphine is added to the bath or injected into the intact animal and the reverse is true when papaverine is administered. Lieb and McWhorter in 1915 demonstrated the gall bladder to contract when exposed to pilocarpine, physostigmine, and morphine, but to relax when exposed to atropine, adrenalin or bile salts. Ivy has recently done work to demonstrate the possibility of a hormone similar to secretin, which is liberated by the intestinal mucosa, and carried to the gall bladder by the blood stream, where it causes an increase in both tonus and the rate of contractions of the gall bladder wall.

Until the valuable contribution of Graham, Cole, Copher and Moore, <sup>4</sup> Diagnosis of gall bladder pathology in many cases was largely a matter of speculation. With the use of this most valuable laboratory procedure, we are now able to diagnose gall bladder dysfunction more thoroughly and much earlier in the disease cycle. Consequently gall bladder diseases can be treated much earlier; which reminds us of the oft-quoted maxim of Borelli "He who diagnoses well cures well."

Cholecsytography was the name applied by Graham and his co-workers' to this laboratory procedure. It has since been adopted in virtually all of the first class hospitals of the world and is generally hailed as the one best laboratory diagnostic procedure. As its name implies it is the introduction of a method which makes possible a study of the gall bladder and its bile ducts, in detail under the X-ray

First of all it is necessary to understand that this method offers a test of the functional capabilities of the gall bladder and not a direct determination of gall bladder pathology except by a process of deduction relative to the variation from the normal. Theoriginators found, after much experimentation, that certain dyes are secreted by the liver cells, carried with the bile to the gall bladder where they are stored and concentrated. The original work was done with the sodium salt of tetraiodophenolphthalein. It was necessary, however, for them to discard this substance because of its toxicity. Many other dyes were tried with more or less sucess. They finally concluded for intravenous administration, phenoltetrachlorphthalein was the best. It cast a good shadow, caused fewer and milder reactions and required a smaller dosage for results.

When phenoltetrachlorphthalien is placed in the body, either intravenously or orally, it is absorbed by the blood stream, taken to the liver and secreted by the liver cells. Having been secreted by the liver, it is stored in the gall bladder. The dye is secreted by the liver just as the bile is secreted, it enters the gall bladder in a dilute form. As we have shown above, the gall bladder has the facility of concentrating the bile, by the absorption through its walls of water; similarly it is able to concentrate the dye. Then when it is exposed to the X-ray a gall bladder shadow is cast.

Given a gall bladder which is physiologically perfect, the dye reaches the gall bladder, is stored and concentrated there. An X-ray examination will therefore show the outline of the gall bladder upon a film. The absence of a shadow, on the contrary indicates that the gall bladder as a whole is not able to store and concentrate the dye, hence no shadow is revealed.

The question arises, before the dye is stored in the gall bladder, it must first be secreted by the liver. Perhaps if the liver is so diseased it would not be able to secrete the dye, then no gall bladder shadow would be shown, when the gall bladitself is quite normal, as a consequence one would interpret the condition as a pathological gall bladder. Graham and his colleagues have shown that as much as half of the liver of a dog can be destroyed and yet a normal physiological gall bladder test result. Diseases which destroy over half of the liver function are extremely rare and are accompanied by symptoms and physical findings which would at once make a diagnosis of liver disease evident. It is therefore readily seen that the percentage of error so explained would be extremely small. Some work has recently been done in this regard with relation to liver function, but this is beyond the scope of this paper. Many reactions do occur following the injection of this dye but it has been shown that the standard dosage does not cause excessive liver necrosis.

Before attempting the use of this method one should be thoroughly familiar with the procedure. It has been advised as follows': .04 gms. of the dye are injected, per kilogram body weight. It should be diluted with freshly distilled water to a solution which does not exceed 8 per cent. Care must be taken against injecting the dye outside the vein, as it is very toxic to the soft tissues. Once the dye has been injected, 50-100 c.c. of normal saline should immediately follow in order to wash the dye well out of the sight of injection. This prevents local thrombosis. When given intravenously the digestive mechanism of the patient should be prohibited as much as possible, because we know that the common bile duct is at least partially patent at its distal end during digestion, especially during the digestion of fats. The patient should therefore, have nothing to eat for 8-10 hours preceeding the injection of the dye. X-ray films are then made at intervals of 4,8, and 24 hours. The oral method requires longer for absorption and secretion. It is given in capsules, approximately the same dosage, is usually given the evening before along with the evening meal. Plates are then made at 12, 16 and 20 hours.

The absence of a shadow is taken as an indication of improper gall bladder function. When a shadow is made and shows a definite outline of the gall bladder, it is taken as an indication of good gall bladder activity. The variation between is of course relative, and the degree of improper function must be interperted on a basis of comparison of known normals as a control.

The intravenous administration has been adopted by most clinics as the superior of the two. Many individuals report excellent success with the oral method. When oral administration is used, there are no sore arms, no reactions and relatively little danger.

Most clinics headed by competent men report an accuracy of the test in 90-95 per cent of all cases, as substantiated by operative findings. Graham' has repeatedly stressed the importance of careful administration and careful and intelligent interpretation.

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# ———O——— HEMATURIA

O. R. GREGG, M.D. ENID

The excuse for this paper, on a mere symptom, is its familiarity. It is the common everyday things of life that are least appreciated. I know of no symptom that you meet as frequently as the red cell in the urine. Each of you, had you realized its importance, could have furnished records reaching into three or four figures. Its very commoness has caused it to be passed over with neglect. How many here tonight so much as take a second thought when the laboratory report shows postive for red cells. Each of you sit up and take notice of a little sugar or a few casts,

while ignoring the presence of the simple erythrocyte. Insurance companies will taboo an applicant with an albuminuria, spend weeks investigating the cancer or T. B. history of a great aunt, and blindly pass by the red thread symptom that malignancy. True it is the master minds, realizing the importance of this cardinal symptom, have written volumes, but you won't read them.

NORMAL URINE DOES NOT CONTAIN RED BLOOD CELLS. THEREFORE ALL HEMATURIAS ARE PATHOLOGICAL. Hematuria is most common in adult life, yet it is frequently found in the nursing infant. It is more common in males than in females, in a ratio about two to one.

In order to avoid confusion I shall make a classification according to the source, i. e., when red cells are found in the urine, they may have come from the right or left kidney, from the right or left ureter, from the bladder, or from the urethra.

*Kidney*. One of the most frequent causes of hematuria arising from the kidney, is tuberculosis. In a series of 331 cases of blood of renal origin. Kretchmer found that 80 were due to T. B., or almost 10%. If we are to obtain results in kidney tuberculosis, it is of the greatest importance that an early diagnosis be made. With the writer the keynote symptom is the frequent painful urination particularly at night, with a very acid urine. I cannot over emphasize this symptom, for it is the one symptom that brings the patient to your office. He or she arises from six to fifteen times at night to urinate; only passes a small quantity and as the last few drops are expressed there is a terrible, pinching, cutting pain. If the patient is a female and you secure a specimen by catheterization, she complains of intense pain as the instrument enters the bladder. Frequently the pain is so great that she will unconsciously throw herself half away from the table in attempt to get away. The urine is always acid, unless previously rendered alkaline, by drugs or certain mixed infection.

My second point of diagnosis is blood and pus in the urine. When you find these associated with the painful nocturia and acid urine most certainly you should make a search for T. B. Usually not a lot of blood cells are present; just a very few from time to time mixed with pus. They may be present in forenoon and absent in afternoon; or present one day and absent

the next, but if you will look often enough they will be found sooner or later. Fulkerson<sup>2</sup> says he finds blood in twenty per cent of his routine specimens from renal T. B.'s. And he always finds it in each patient's specimen sooner or later.

Diagnostic point number three, is finding the T. B. bacillis with the microscope. Of course if you find them, well and good. Your diagnosis is made. However, not to find them certainly does not mean a negative diagnosis. The usual routine is to centrifuge, centrifuge, centrifuge, and centrifuge, then take the sediment and look and look and look and look. Personally I want to confess that I have never been able to find the little red threads unaided. I simply haven't the knack or the persistence. However the technician in my office is able to find them in between sixty (60) to seventy (70) percent of our renal T. B.'s.

My fourth important diagnostic point is a urological examination, whether you have been able to find the bacillus or not. If you have not been able to find them, such an examination may be able to clear up and establish a diagnosis. If you have found them it is quite necessary that you determine which kidney is the guilty organ. This can be done only by ureteral catheterization.

The patient is placed on the urological table and the cystoscope inserted. I stated in a previous paragraph that the patient would move when you inserted the catheter. This action is doubled and quadrupled when you insert a 24 F cystoscope. At this time let me state that if the patient has urinary T.B. a satisfactory examination can not be made without an anesthetic of some kind. After you have inserted the instrument you may be surprised how little pathology you view, compared with the amount of pain the patient experiences. The amount of pain is entirely out of proportion to the amount of visible pathology. You will view the ureteral orifice, looking for ulcers or tubercles. You may find some, but probably not. You now pass the catheter (X-ray preferred), up ureter and instead of passing easily as in a normal ureter you get a distinct resistance, or drag, that to me, is quite diagnostic. One author says it feels like a rod being pushed up a lead pipe. After the catheters are in place, and specimens from either have been saved, the PSP function of each kidney is taken, and pyleograms made. I have been making double

pyleograms and to date have had no bad results thinking it better than to subject the patient to a second cystoscopy. The pyleogram is quite diagnostic. The calices instead of being clear cut and concave assume a wooly, moth-eaten, indistinct appearance.

My fifth and last point of diagnosis is the guinea pig. At one time I was an absolute fundamentalist as far as the pig was concerned; it was law and gospel to me. I now use more than one pig, and occasionally take the liberty of doubting them. I believe occasionally we will get a good healthy pig that has enough resistance and throws out enough anti-bodies to overcome the bacterial sediment we have injected and thus give a negative diagnosis, when a postive was in order. I think I have had this happen several times. Braash told us at the 1928 meeting of O. M. A., that they were of the opinion that at times the pig was over-sensitive and gave a positive reaction, when it should have been a negative.

With the above diagnostic points it seems inexcusable to me to "sin away our days of grace" in making a diagnosis of renal T. B. Let me recapitulate.

- 1. Frequent painful urination, at night, with acid urine.
  - 2. Hematuria and pyuria.
  - 3. Microscopy.
  - 4. Urological examination.
  - 5. Guinea pig inoculation.

Stones, are probably the next most common cause of hematurias, of kidney origin. I feel quite sure that Oklahoma produces more calculae and less renal T. B. than most states. I am hoping to give more definite data in the future. With renal calculus, you may have a lot of pain or no pain. You may have a lot of blood, generally do at sometime in the history of the case, or you may have very little. How many are familiar with the following picture:

A man is a roustabout in the oil field; he is loading pipe, or pulling sucker rods and his foot slips (his foot always slips) and he passes red bloody urine. If compensation is carried, he is placed in a hospital with a diagnosis of a contused kidney. You tell him that under your wonderful care he will be all right in a few days, and that the insurance company will pay all the bills. If it's a farmer that has his foot slip, with no insurance, the bloody urine does

not mean so much. He is given a prescription, told to go home, be careful, that he has a sprain and all will be well in a few days, and it generally is. Is that picture familiar? Formerly, the insurance company paid and paid, but that day is past. An x-ray is now taken, and isn't it surprising just how many of those torn kidneys turn out to be calculae. At this time the X-ray aided by pyleogram and opaque catheter to confirm the locality is the best diagnosis for stones.

The other cause for a profuse bloody urine is neoplasms. Here, men, is where hematuria means danger in brilliant red. It may be and probably is the only symptom that will lead you to an early suspicion and thus you will be able to savealife by early surgery. Blood; lots of it that occurs from time to time over long periods. When you find a lot of blood coming down from the kidney, think of two things, stones and malignancies. Of course, you may get some tenderness, and you may be able to palpate a mass at times, but many more times you will base a diagnosis on your profuse hematuria aided by the pyleogram Let me quote you from some prominent urologists. Braash' in an analysis of 83 cases of hypernephroma found that hematuria had existed more than a year before other symptoms developed, in 64 cases. Hinman' in an analysis of published works of eight different surgeons, found that in 709 cases of renal growths, hematuria was the onset symptom in 297 cases. Hurry Fenwick' shows hematuria is the first symptom in 70 per cent of hypernephromata. Walther in a study of 74 cases of hematuria, both accompanied and unaccompanied by other symptoms, demonstrated that over 52 per cent were malignant.

Pyelitis is a common cause of hematuria. There has been so much written about pyelitis by pediatricians, obstetricians, internists and urologists it is hardly worth while to mention it. Pus and blood cells with the constitutional symptom enable a diagnosis.

Nephritis, caused from disease and chemicals is frequently the cause of blood in urine. Such diseases as typhoid, scarlet fever, smallpox, and most all the tropical fevers cause a nephritic hematuria while bichloride, phosphorus and turpentine cause a chemical nephritic hematuria. Albumen, casts, and constitutional symptoms make the diagnosis not difficult, when

taken into consideration with the history of the case.

Ureters. The two principal causes of hematuria arising from the ureters are stone and kinks or strictures, the symptoms of which you are all familiar. Diagnosis is made by ureterograms, and the use of the x-ray catheter.

Bladder. Kretchmer in his aforementioned 933 cases found carcinoma of the bladder to be the cause of 163, and papillomata, which most G. U. men concede malignant if left untreated, in 72. Chute', in his 100 cases of bloody urine, found bladder malignancies to be the cause of 25, and papillomita in 10. Other writers vary but little from the above statistics. Men! stop and consider. Out of every 100 times that the hospital laboratory or your office nurse reports red cells in the urine, 30 of them are malignancies of the bladder, or growth potentially malignant. There is no question but that papillomata, those cauliflower, see-weed-like growths, can be obliterated by early fulguration, yet if left alone soon penetrate the bladder walls and become cancers. Are you doing your duty when you blindly pass by these important growths? Is it any wonder that Bransford Lewis made the statement that any practitioner that neglects to find cause and source of red blood cells in the urine, should have his license revoked and be forever barred from practice of medicine. Diagnosis can only be made by cystoscopic study.

Stones, Cystitis, and Tuberculosis are the cause of a very small percentage of hematuria from the bladder. Diagnosis is easily made by the cystoscope.

Prostate, hypertrophic adenomata, carcinomata, and tuberculosis are the chief cause of bloody urine, arising from the prostate. Usually little difficulty is encountered on making a diagnosis with the finger in the rectum, and a sound or a cysto-urethrascope in place.

All of us know the feeling of the large hypertrophied prostate. The hard, bony, stony prostate with nodules, particularly at the lower angle of the prostate in an old man means cancer, while nodules in this locality in the young man should be held suspicious of T. B. until absolutely proven otherwise. Stones, which are infrequent, are found in the upper part or body of the organ and can usually be

detected with the finger, metal instrument, and X-ray if necessary.

Hematurias arising from the urethra are in the vast majority of cases due to G. C. or its sequela, namely, strictures, ulcers, and various soft growths.

Very little is mentioned of blood from gummata, in this region, however, I observed them in three cases within a year, two of which I reported in detail in an article published in the November, 1928, Journal of the Oklahoma State Medical. Association.

In conclusion, I realize that hematuria is a tremendous subject and that I have only "hit the high places." I am most sincere in believing that it is a keynote symptom being neglected by many practitioners. If this paper has done nothing more than to make some realize the importance of and show greater diligence in the early diagnosing of urinary tuberculosis, and malignant neoplasms, the author will consider his time well spent.

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TULAREMIA\*

R. C. MELOY, M.D. CLAREMORE

In view of the fact that tularemia has made its appearance in Oklahoma during the past few years, and being an infectious disease, may as time passes, become more prevalent, and owing to the fact that the first cases of record in Oklahoma were found in Rogers County, Oklahoma, I feel that it would not be out of place at this particular time to refresh our minds regarding the characteristics of this infection, and the various methods by which the individual may become accidentally inoculated.

\*Read before the Rogers County Medical Society April 15th, 1929.

Tularemia may be defined as a specific plague-like infectious disease common to many rodents, and is occasionally transmitted to man. The bacterium tularense, which is the causative agent gives rise in certain rodents to pathognomonic lesions in the liver. The infection, insofar as has been reported, is confined to the United States. The occurrence of the disease in either rodents or man has been reported in California, Utah, Wyoming, Idaho, Colorado, Montana, New Mexico, Southern Indiana, Ohio, Tennessee, North Carolina, Virginia and West Virginia, and in Washington, D. C. Three cases of laboratory workers being infected have been reported in London. To Francis, who has given the name tularemia to the infection, we owe most of our present knowledge concerning it.

The specific organism is a very minute round or rod shaped organism, varying from three-tenths to seven-tenths microns in length and from two-tenths to three-tenths microns in width. At autopsy on animals that have died from the infection large numbers of this organism are found in microscopical preparations from the heart's blood, the liver, spleen and swollen lymphatic glands.

Tularemia may be transmitted experimentally by a number of insects as well as by handling carcases of animals that have died of the disease. The blood sucking fly, commonly found on horses, is capable of transmitting the infection from rabbit to rabbit in the laboratory, and this fly is also known to bite man. The human bed bug which also bites rodents is capable of transmitting tularemia from mouse to mouse. Francis and Lake found that bacterium tularense suffers no apparent diminution in virulence by reason of long residence in bed bugs. The virulence was manifested by acute death from tularemia within five to seven days in' cases of a mouse bitten by bed bugs that were infected seventy-one days previously. When inoculated mice were dropped into a jar in contact with healthy mice, the infection killed off the healthy mice within 25 days. Wayson found that the stable fly transmitted the infection from guinea pig to guinea pig when the interval between biting the infected and the healthy animal was less than one hour. Obviously, the transmission was purely mechanical. Parker also discovered the organism in the wood ticks. In addition to this tick which bites both rabbits, wood chucks and man, the squirrel flea, the stable fly, the bed bug, and the deer fly bite both rodents and man. Obviously, however, infection in man may occur in another manner than by insect transmission as by handling of the infected rodents which have been shot, skinned or prepared for food. The infection of laboratory workers in Washington and in London also demonstrates that the infection may be acquired from handling infected rodents.

The incubation period in man has not been determined with certainty. However, Francis has given the period in eight cases as follows: in three, two days; in one, three days, and in two, five days; in one each, 8 and 9 days; the average being about 41/2 days. He states that, considering the probable incubation period on other cases, he would regard the most common incubation period as from two to five days. The onset of the disease is described as being usually sudden, often occurring while the patient is at work, manifested by headaches, chills, bodily pains, vomiting, prostration and fever. In cases which are caused by fly bites or tick bites the patient complains generally within 48 hours after the onset of pain in the area of the lymph glands which drain the site of the infection. The symptoms ordinarily last from five to eight weeks and are followed by very slow, tedious convalescence. The most striking feature of the disease in man arises from the great prostration and disability which accompanies the illness, generally causing from two to three months' loss of time. Reporting some cases infected from the bite of insects Francis states that after the third day the site of the bite begins to present a black necrosed center which soon separates and sloughs out. The adjacent lymph glands in all of his cases required incision for the liberation of pus. In one of his cases which proved fatal, the average of the morning temperatures was 99.3F; the average afternoon temperatures were 100.4 F. The organism itself was not demonstrated in the human cases but its presence was determined by inoculations of the material from the cases into guineapigs and rabbits. Of six laboratory workers reported by Lake and Francis, who contracted the disease while in the United States Public Health Service, employed in investigating tularemia, two were in field laboratories and were compelled to work under primitive conditions, while four contracted the infection in the hygienic laboratory at Washington, D. C. Two of the men were physicians; the others, laboratory assistants. In reaching the diagnosis of tularemia in the six infections contracted in the laboratory, the diagnosis rested upon the occurrence of a febrile period lasting about three weeks, positive serum reactions for agglutination, and complement fixation to antigen composed of bacterium tularense. The six laboratory cases, except in the second attack of the first case, furnished no local lesion indicating the portal of entry of the infection and no involvement of the superficial lymph glands.

Francis collected histories or notes of 49 cases of human infection with this disease—in some of these the diagnosis was not entirely definite. Of the 49 cases, 14 followed fly bites, 1 was caused by a tick bite, 10 had cut up jack rabbits, 10 had dressed wild cotton tail rabbits, and 14 were laboratory workers who had performed necropsies on infected guinea pigs or rabbits in laboratory. Of the 35 cases in which the patients had either been bitten by an insect or had cut up and dressed rabbits, 33 were of the glandular type with enlarged glands and evident local site of infection. In two of the 35 cases there was an absence of enlarged glands and of a local site of infection. The 14 cases of infection in laboratory workers were free from enlarged glands or local site of infection and clinically simulated typhoid fever. Francis points out that errors in diagnosis may arise in cases which simulate typhoid fever, septic infections, glanders and anthrax. In the case of a person who has dressed and prepared rabbits for the table and who developed inflamed glands of the crevical epitrochelar, or axillary regions accompanied by fever and marked illness, tularemia should always be borne in mind. In the spring of 1925 I saw two cases which I wish at this time to report.

Case A. Boy, 16 years of age, had been well up to April 2nd, 1925, when he was seized with a pronounced rigor followed by elevation of temperature, slight nausea and general aching. Picture remained the same on the 3rd and 4th, somewhat

left hand, and following lymphatics to various glands in arm and axilla. Glands slightly enlarged and hard. Bowels constipated. Urinary output but slightly diminished; analysis showed trace of albumen, otherwise negative; morning temperature ranged 99.5 to 100.5 F., afternoon temperature 101 to 104 F. Appetite poor, patient restless and disturbed. Picture continued about the same for the following week except the glandular involvement became more pronounced and on the 15th day glands began to soften to some extent. All enlarged glands were treated by incision and drainage. After drainage pain in arm was greatly reduced and all symptoms ameliorated. Patient confined to bed until May third, when temperature returned to normal, and convalescence definitely established but it was fully four weeks afterwards before patient was able to resume his usual activities. The history in this case showed the boy had killed and skinned a cotton tail rabbit three days before the first appearance of symptoms.

Case B. Woman, 54 years of age, mother of five children, youngest 13 years of age, and incidentally, the patient here referred to is mother of the patient reportin Case A. This case ran a course about parallel with A and at the same time, there being nothing to be brought out by a complete report other than what is shown in Case A, other than that Case B had cut up and cooked the same rabbit which case A had killed and skinned. The entire family of seven ate of the rabbit but only those handling the carcass before cooking were infected. Dr. W. I. Mason saw these cases with me on two occasions and it was he who first suggested the true nature of the malady. Specimens of pus from suppurating glands in both of these patients were sent to Oklahoma State Laboratory and were examined for bacterium tularense but same were not found. However, this is the rule and it is only by guinea pig inoculation that positive diagnosis could be made from the pus. Blood specimens after convalescence was well estabaggravated by pain in left hand and arm. I saw this boy on April 5th., 4 p. m., and found a patient which had the appearance of being very ill. Temperature at this time 104 F., pulse 140, respiration 24, tongue and mouth dry, head and back aching, some tenderness and distention of abdomen, painful area on back of third finger, lished proved positive by agglutination tests.

Case C. Young man 24 years of age, farmer, married, complained of pain in index finger of right hand on January 4, 1928. Some swelling and almost simultaneous with pain in finger was painful areas noticed along the arm and into the axilla. General septic appearance, headache, backache, poor appetite, general lassitude, no definite vigor, temperature elevation from the first 99 to 100 F., a. m. and 100 to 103 F., p. m. Previous history unimportant. Tongue heavily coated, dark brown, edges of tongue bright red, breath foul, some conjunctivitis. Did not get to see this patient very often and he declined to have enlarged glands incised. But about June 1, they began to break down and open through skin and establish drainage. Patient continued septic and was unable to perform any work to speak of through the entire season. In fact, in September, axillary glands were still discharging slightly. Blood specimen sent to State Laboratory September 1, gave positive agglutination test for tularemia. Francis states that the blood test during the first week is of no particular benefit. In fact his earliest case showing positive agglutination was 13 days after the initial symptoms. However, the blood test will show positive for as long as two years after recovery from this infection. The three cases here reported gave history of handling the carcass of the common cotton tail rabbit three and four days prior to first advent of symptoms. The rabbits being handled in the regular course of preparing them for food. Treatment used in these cases was simply incision and drainage of suppurating glands and tonic supportive general treatment.



DOCTOR CLYDE W. BESON.

Dr. C. W. Beson, Claremore, appointed State Commissioner of Health by Governor Holloway to succeed Dr. O. O. Hammonds, resigned, is a practitioner of Claremore. Dr. Beson was born near Augusta, Illinois, in 1879, receiving his education in the high school at Plymouth. He graduated from the Ainsworth Central Medical School, Saint Joseph, Missouri, in 1906, For twenty years he has been located in Claremore, giving special attention to hydrotherapy.

## THE JOURNAL

OF THE

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DR. CLAUDE A. THOMPSON Editor-in-Chief
Barnes Building, Muskogee, Okla.
DR. P. P. NESBITT Associate Editor
Palace Building, Tulsa, Okla.

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Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association arc the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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#### EDITORIAL

#### ANNUAL SESSION CLINICS

The meeting of the Oklahoma Medical Association in Oklahoma City, May 27-29, bids fair to be one of the best, if not the best, in the history of the society.

In addition to the attractive programs arranged by the various sections, a program of clinics is added. These are to be held at the various hospitals and will be one feature that must be attended if benefit is to be derived, as the ideas developed and discussed there do not appear in the Journal. Papers read in the scientific sessions and their discussions appear in the Journal, and may be read and digested

and filed away for reference later if desired, but not so with the Clinics. Only what we acquire by attendance is ours, and it is here that original ideas may appear and never be found on the printed page.

Medical societies generally are featuring clinics now, more than in the past. Conforming with that trend the committee has provided a full clinic program for the mornings of the 28th and 29th. The scientific sessions of the various sections, which is the chief feature, will in no way be encroached upon.

W.W. RUCKS.

#### ANNUAL MEETING SUGESTIONS

#### HOTELS

Make your Hotel reservations early. The rates are:

*Huckins* — Double rooms with baths, \$4.00 to \$4.50; single rooms with bath, \$3.00 to \$4.00.

Skirvin — Double rooms with baths, \$4.00 and up; single rooms with baths, \$2.50 and up.

Wells-Roberts — Double rooms with bath, \$4.00 and up; single rooms with bath, \$3.00 and up.

Write either direct to the hotel or to Dr. L. J. Starry, Chairman, 912 Medical Arts Building, Oklahoma City, for reservations.

It is important that you make these reservations as the Legislature will likely be in session and the hotels will be crowded more or less.

#### PAPERS FOR THE ANNUAL SESSION

The program for the Annual Session appears elsewhere in this issue. There yet remains time enough for the contributors of these papers to cooperate greatly in making a better Journal by remembering:

- 1. All papers are the property of this Association and should not be carried away from the meeting for any purpose.
- 2. Papers should be prepared in duplicate, double spaced, with wide margins. They should be carefully reread and corrected and rewritten to the end that every possible error may be eliminated before the final release.
- 3. If your paper is to be discussed formally, copy or abstract of it should be sent the one who is to open discussion.

#### I. W. LONG

In the years past occasionally literature has been received from the above titled gentleman, offering courses in localities where "classes" of physicians might be organized, and lately the Journal has had some inquiries with reference to his activities. The Bureau of Investigation, American Medical Association, refer interested readers to page 1951, Journal, American Medical Association, December 2, 1922, in which it is stated that Long is not a physician but a publicity agent for courses in electrotherapy, diseases of the rectum, zonetherapy, spondylotherapy, etc. The gentleman also seems to have sold abdominal supporters, books on osteopathy, chiropractic and drugless methods. Long gives his address, at Columbus, Ohio, at present, but his name does not appear as a physician in any directory consulted.

#### Editorial Notes - Personal and General

THE AMERICAN HEART ASSOCIATION will hold a meeting in Portland, July 9, 1929.

DR. LAWSON HUGHES, formerly of Tonkawa, announces his removal to 206 Bliss Building, Tulsa.

BRYAN COUNTY MEDICAL SOCIETY met in Calera, April 9th, as the guests of Dr. and Mrs. A. J. Wells.

DR. THOMAS McELVOY, Ponca City, has returned from a three months' trip to Vienna and other European points.

DR. ALLEN C. CRAMER, Ponca City, has been appointed health officer for Kay County to succeed Dr. D. M. Cowgill.

DR. and MRS. H. A. LILE, Cherokee, have returned from a two months' trip along the Gulf coast of Florida and Cuba.

DR. G. M. RUSHING, Durant, has been appointed county health officer for Bryan County, to succeed Dr. R. E. Sawyer.

DR. C. E. NORTHCUTT, Ponca City, spent April in Rochester, Minn., where he took special work in medicine and surgery.

DR. M. SHADID, Elk City, has returned after a five weeks' absence taking a post-graduate course in New York City and Battle Creek.

DR. and MRS. F. C. REWERTS, Bartlesville, have returned from Kansas City, where Dr. Rewerts attended sessions of the Southwest Clinical Society.

DR. C. F. PARAMORE, Shawnee, who has been in the University Hospital since March 1st, following an automobie accident, has returned to his home.

DR. and MRS. W. E. EASTLAND, Oklahoma City, are in New York City, where Dr. Eastland is doing special work in dermatology and attending the clinics.

DR. GEORGE W. WEST, Eufaula, who received painful injuries when his car wrecked, due to defective steering gear sometime ago, has now resumed his practice.

THE NEW BORDER HOSPITAL, Mangum, is nearing completion The addition which is being completed, doubles the capacity of the hospital. The older building has been refinished.

MUSKOGEE COUNTY MEDICAL SOCIETY met April 8th, at which time Dr. Chas. W. Heitzman read an interesting paper upon the "Use of the Duodenal Tube." The paper was very generally discussed.

KAY COUNTY MEDICAL SOCIETY held its annual meeting April 25th at the Courthouse. Dr. Spaulding, Arkansas City, read a paper on "Tularemia" and Dr. H. M. Stricklen, Tonkawa, read a paper on "Abdominal Pain."

NOBLE COUNTY MEDICAL SOCIETY met in regular session at the office of Dr. B. A. Owen in Perry, April 9th. The following officers were elected: Drs. T. F. Renfrow, Billings, President; J. W. Francis, Perry, Vice President; B. A. Owen, Perry, Secretary-Treasurer.

McINTOSH COUNTY MEDICAL SOCIETY met at Eufaula May 7th and the following program was given: Cerebro-Spinal Fever, Epidemic Meningitis. These papers were discussed by Drs. Pearce and Bennett, superintendents of health of Pittsburg and McIntosh Counties. There was also a general discussion on Pellagra.

MUSKOGEE COUNTY MEDICAL SOCIETY met at Muskogee May 3rd to enjoy a dinner and see a moving picture showing the behavior of living tissue in vitro and the effects of radium on cancer cells; a film prepared by Dr. R. G. Canti, of London. Dr. E. S. Lain, Oklahoma City, spoke briefly upon the subject. About 70 physicians were present.

OKMULGEE-OKFUSKEE County Medical Societies held an annual all day clinic April 15th, at Okmulgee. The Surgical Clinic was conducted by Drs. W. C. Vernon, T. J. Lynch, and J. C. Rembert; the Eye, Ear, Nose and Throat Clinic by Drs. J. C. Matheney, L. B. Windham and W. W. Hicks; the Medical Clinic by Drs. C. M. Ming, W. C. Michener, L. B. Torrance and M. D. Carnell. Dr. A. L. Blesh, Oklahoma City, spoke on Goiter at the evening meeting.

SOUTHERN OKLAHOMA MEDICAL ASsociation met at Chichasha, April 18th. The address of welcome was given by Mr. Nicholas; Response, Dr. W. T. Salmon, Duncan; "Underweight Children," Dr. F. A. Harrison, Ardmore; "To whom do we owe Gratuitous Service," Dr. A. M. McMahan, Duncan; "The Recent Meningitis Epidemic," Dr. P. H. Anderson, Anadarko; "Gunshot Wound Complicated with Peritonitis," Dr. E. B. Dunlap, Lawton; Paralysis of the Ileum," Dr. J. L. Patterson, Duncan.

GARFIELD COUNTY MEDICAL SOCIETY had a guest day program April 15th. A Medical Clinic was held by Dr. David Barr, St. Louis; a Neurological Clinic, by Dr. A. W. Adson, Rochester; an Orthopedic Clinic by Dr. Wade Sisler Tulsa. In the afternoon Dr. C. C. Dennie, Kansas City, read a paper on Hereditary Syphillis; Dr. Sam Burrows, Chicago, read a paper on Practical Points in General Surgery; Dr. David Barr read a paper on High Blood Pressure and its Significance; Dr. Wade Sisler read a paper on Reconstruction Operation in Hip Fracture; Dr. A. W. Adson read a paper on Raynaud's Disease and Allied Vascular Disturbances by Thoracic and Lumbar Sympathetic Ganglionectomy.

#### DOCTOR WILLIAM HUGH PRICE

Dr. W. H. Price, Eldorado, Oklahoma, died at his home April 27th, 1929.

He was born in Ashland, Alabama, July 23, 1879, and was married to Miss Abbie

Walls, April 3, 1902.

Dr. Price graduated from the Birmingham Medical College in 1910, and practiced medicine in Alabama until December, 1923, when he moved to Eldorado, Oklahoma, where he continued the practice of medicine until his death.

He is survived by his wife and ten children

As a mark of respect members of the Jackson County Medical Society, of which Dr. Price was a member, attended the funeral services in a body.

#### DOCTOR CHARLES P. LINN

Dr. C. P. Linn, a pioneer physician of Eastern Oklahoma, died at Morningside Hospital, Tulsa, on Monday, March 25th, of arteriosclerosis, after several months' illness. Age 68.

Dr. Linn graduated at the University of Louisville, in 1884, after which he practiced at Claremore a short time before becoming government physician to the Indians of the

Seminole Nation.

He practiced among the Indians many years, having conducted a hospital at Holdenville for some time. He removed to Tulsa in 1914, and shortly after confined his work to rectal diseases, the specialty which he followed up to the time of his death.

Dr. Linn was a member of Tulsa County Society, but never very active in its deliberations on account of poor health. He was also a member of Trinity Commandery Knights Templar of Tulsa, members of which acted as an escort at his funeral.

A wife and one daughter are left to

mourn his death.

Tulsa County Society deeply feels the loss sustained in the passing of this well known physician and drafted suitable resolutions upon his death.

#### DOCTOR ANDREW JACKSON SMITH

Dr. A. J. Smith, 74 year old pioneer physician of Pawhuska, died at his home April 5th, after an illness of several months. He was born November 21, 1855, at Marion, Illinois. Dr. Smith attended the University of Kansas, graduating from the medical school in 1897, and began practice in Ponca City. In 1906, he moved to Foraker, where he practiced two years and then moved to Pawhuska, where he had since made his home.

Dr. Smith was a member of the Masonic lodge at Pawhuska, the Consistory at Guthrie, and the White Shrine at Tulsa. He was also a member of the K. of P. and the I. O. O. F. and the Eastern Star.

He is survived by his wife and four children.

A midnight Masonic service was held April 5th. Interment made in Ponca City.

#### DOCTOR JAMES EDWARD WEBB

Dr. James E. Webb, 72 years old, for the last three years county physician, died at his home in Tulsa, April 12, 1929. He was born at Lexington, Missouri, in 1858, and was educated at the Missouri University and Ohio Medical College, graduating from the latter place in March, 1881.

Funeral services for Dr. Webb were held April 13th, burial being at Oaklawn cemetery. Dr. Webb is survived by a son, three sisters and one brother.

#### DOCTOR DANIEL F. JANEWAY

Dr. D. F. Janeway, age 77 years, a resident of Stillwater since 1889, died at his home April 21, after a lingering illness.

Dr. Janeway was born at Knoxville, Tennessee, January 6, 1854. His preliminary education was obtained at Penn College, Iowa. He graduated from Kansas City Medical College in 1884. Dr. Janeway came to Oklahoma from Angoria, Kansas, in 1889, where he had since lived.

He is survived by his widow, two sons and three daughters.

Funeral services were held April 23rd, at the First Methodist Episcopal church. Masonic burial services were held at the grave, in Fairlawn cemetery.

#### PROGRAM

# THIRTY-SEVENTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 27-28-29, 1929

Meeting Places — Huckins Hotel, University Medical School and Hospital.

Registration — Physicians, members, must be in good standing, that is they must hold certificate of membership for 1929 before they may be registered. If you are not in good standing see your Secretary at once and arrange this matter before coming to Oklahoma City, as at that time membership will be difficult of verification.

Delegates—Should present their credentials to the Credentials Committee, preferably on the morning of May 27th, at the Huckins Hotel, the place of first meeting of the House of Delegates.

Papers—Are the sole property of the Association. Unnecessary loss of these papers or delay in their publication results when they are carried away after being read by the author. Papers should be prepared in triplicate in order that the author may always have a copy. After being read they should be left with the Secretary or Chairman of the Section and these gentlemen should see that they are delivered to the State Secretary. Before final publication of any paper proof will be submitted to the author for his correction. All papers should be typewritten, with wide margins, double spaced and each of them should contain as the first information, the title, name of the author, his address and his office building or street.

Council—Will meet at 3 P. M., Huckins Hotel, Monday, May 27th, and will meet thereafter for the transaction of business as is necessary. All matters of business should be presented to the Council and not to the House of Delegates.

The House of Delegates—Will meet at the Huckins Hotel, Mezzanine Floor, 8 P. M., Monday, May 27th, and in the auditorium, Medical School Building, 8:30 A. M., Tuesday, May 28th.

Clinics—A schedule of the Clinics was printed in the April Journal. This schedule may be obtained at the information desk, Huckins Hotel, which desk will function throughout the meeting.

Hotel and Hospital Telephones-	
Huckins	3-4341
Skirvin	2-1251
Wells-Roberts	3-5421
Oklahoma City General Hospital	
St. Anthony's Hospital	7-1511
Oklahoma City Clinic	
and Wesley Hospital	7-3531
University Hospital	7-1511
Medical School Building	7-1511
The General Meeting—Will be	held at

The General Meeting—Will be held at 8:15 P. M., May 28th, Mezzanine Floor, Convention Hall, Huckins Hotel.

The President's Reception and Dance—Will be held at 9 P. M., May 29th, Huckins Hotel.

#### SECTIONS

All sections will convene at 1:00 P. M. Tuesday, May 28, and Wednesday, May 29th.

Exhibits—East wing, University Medical School, (first floor).

Eye, Ear, Nose and Throat—East wing, University Medical School (first floor).

Surgery—Auditorium, University Medical School, (first floor).

General Medicine — Assembly Room, University Hospital.

#### CONDENSED PROGRAM: Monday, May 27, 1929 (Morning)

9:00 Golf Tournament, throughout the day.

#### (Afternoon)

- 1:30 Oklahoma State Pediatric Association—School of Medicine Building.
- 2:00 Oklahoma Dermatological Association—School of Medicine Building.
- 3:00 Meeting of the Council, Huckins Hotel.

#### (Evening)

8:00 Meeting of the House of Delegates
—Huckins Hotel.
TUESDAY, MAY 28, 1929

#### (Morning)

8:30 Meeting of the House of Delegates
—School of Medicine Building.
8:30 to 12:00—Clinics.
(See Clinical Program).

(Afternoon)

12:15 to 1:00—Luncheon.

—School of Medicine Building 1:00 to 5:00—Section Meetings. —School of Medicine Building.

(Evening)

6:00 to 8:00—Dinners.

Medical Fraternities
—Huckins Hotel.

Oklahoma Dermatological Ass'n —Huckins Hotel.

Women Physicians' Dinner—Oklahoma Club.

Officers Reserve Dinner —Oklahoma Club.

8:15 Opening Meeting
—Convention Hall, Mezzanine
Floor, Huckins Hotel.

WEDNESDAY, MAY 29, 1929

(Morning)

8:00 to 12:00—Clinics. (See Clinical Program).

(Afternoon)

12:15 to 1:00—Luncheon
—School of Medicine Building.
1:00 to 5:00—Section Meetings

—School of Medicine Building.

(Evening)

7:30 to 9:00 General Scientific Program of all Sections—Convention Hall, Huckins Hotel.

#### **ORATIONS**

Fractures.......Dr. Wade H. Sisler, Tulsa Goitre...Dr. R. M. Howard, Oklahoma City Pediatrics—"Keep the Well Baby Well." Dr. T. H. McCarley, McAlester.

"Social Aspects of Tuberculosis"—Dr. L.
J. Moorman, Oklahoma City.
9 to 12—Reception and Dance

—Huckins Hotel.

Taxicabs will leave the Huckins Hotel, Tuesday, 7:30 A. M., for the Clinics at the Hospital.

#### LADIES' PROGRAM TUESDAY, MAY 28, 1929

1:00 Luncheon, Oklahoma City Golf and Country Club, followed by a drive to points over the City.

WEDNESDAY, MAY 29, 1929

Matinee Party in Afternoon.

# COMMITTEES OKLAHOMA COUNTY MEDICAL SOCIETY

DR. ARTHUR W. WHITE, General Chairman Advisory:

Drs. Le Roy Long, Sr., A. L. Blesh, R. M. Howard, Charles E. Barker, A. B. Chase, J. F. Kuhn.

#### Clinics:

Drs. Le Roy Long, Sr., A. L. Blesh, R. M. Howard, Charles E. Barker, P. M. Mc-Neill, A. D. Young, John Z. Mraz, J. E. Harbison.

#### Finance:

Drs. A. B. Chase, Horace Reed, L. A. Riely, C. J. Fishman.

Stationery and Badges:

Drs. W. W. Wells, W. E. Dixon, G. L. Borecky.

#### Entertainment:

Drs. C. E. Clymer, G. Penick, D. W. Branham, W. E. Eastland, R. O. Early.

#### Building:

Drs. J. M. Thuringer, H. G. Jeter, L. J. Starry, Rex Bolend, H. H. Turner.

#### Advertising:

Drs. J. A. Roddy, L. A. Riely, A. D. Young, W. W. Rucks, J. M. Postelle, M. E. Stout.

#### Golf:

Drs. S. R. Cunningham, P. M. McNiell, Horace Reed, W. W. Wells, R. O. Early.

Reserve Officers:

Captain W. E. McCormick, J. A. Roddy, Floyd J. Bolend.

#### Fraternal Dinners:

Drs. J. P. McGee, A. C. Shuler, N. Price Eley, Rex Bolend, C. E. Clymer.

Women Physicians:

Dr. Lelia E. Andrews.

#### Women's Entertainment:

Mrs. S. E. Frierson, Mrs. W. K. West, Mrs. A. R. Lewis, Mrs. L. M. Westfall, Mrs. M. M. Roland, Mrs. A. L. Blesh.

#### Music:

Drs. Dick Lowry, Tom Lowry.

#### Hotels:

Drs. L. J. Starry, J. B. Eskridge, H. D. Collins, C. E. Bates.

#### PROGRAM, GENERAL MEETING Convention Hall, Huckins Hotel MAY 28, 8:15 P. M.

Dr. Arthur W. White, General Chairman Presiding

Invocation—REV. SAMUEL GIBSON, D.D. Music.

Address of Welcome—DR. LE ROY LONG, Dean, Oklahoma University School of Medicine.

Response to Address of Welcome—DR. W. T. SALMON, Duncan, Oklahoma.

Music

Introduction of President-Elect Hendershot by the President, DR. ELLIS LAMB, Clinton.

President's Address—DR. C. T. HENDER-SHOT.

Address—RAYMOND E. SCOTT, Major, Medical Corps, Fort Sam Houston, Texas. Address—DR. IRVIN ABELL, Louisville, Ky.

#### GENERAL SURGERY, GYNECOLOGY, OBSTETRICS AND UROLOGY

L. J. STARRY, Chairman, Medical Arts Building, Oklahoma City.

RAY WILEY, Secretary, Medical Arts Building, Tulsa

Place — Auditorium Medical School
Building.

- 1. Chairman's Address: "Acute Dilatation of Stomach"—L. J. STARRY, Oklahoma City.
- 2. "Gynecology As Practiced in Oklahoma"—GRIDER PENICK, Oklahoma City.

  A statistical analysis of a large group of cases admitted to Dr. Penick's service at University Hospital. A discussion of the kinds of treatment practiced by the various Doctors over the State as evidenced by these cases and discussion of the methods used at the University Hospital.

Discussed by EDWARD W. FOSTER, Tulsa, and V. C. TISDAL, Elk City.

- 3. "Maligancy of the Breast"—CARL A. HAMMAN, Cleveland, Ohio.
- 4. "Tumors of Urinary Bladder"—WM.E. LOWER, Cleveland, Ohio.
- 5. "Tannic Acid Treatment of Burns."—
  STRATTON KERNODLE, Oklahoma City.

  Resume of treatment of burns with discussion of new methods and report of results with tannic acid method.

  Discussion by: CURT VON WEDEL, Oklahoma City; WM. ARMSTRONG, Ponca City.
- 6. "Renal Colic"—0. R. GREGG, Enid.

  Symptomatology and differential diagnosis of various causes. Presentation of cystoscopic

and pyclographic findings; prognosis and treatment.

Discussion by: REX BOLEND, Oklahoma City; MALCOM MCKELLAR, Tulsa.

7. "Clinical and Roentgenological Aspects of Chronic Appendicitis."—MORRIS B. LHEVINE, Tulsa.

Lantern Slides: A report of a scries of cases with referred symptoms in which the X-ray findings indicated diseased appendicies; operative findings and end results. Discussion of symptomatology of the group and X-ray technique.

Discussion by: J. E. HEATLEY, Oklahoma City; LEON STUART, Tulsa.

- 8. "The Diagnosis and Treatment of Ureteral Calculi."—H. S. BROWNE, Tulsa.
- 9. "Management of Peritonitis Due to Pelvic Infection." — D. S. DOWNEY, Chickasha.

The technique of management of abscessed appendices and pelvic infection. Discussion of time when to operate and when best treated medically. Operative technique. Treatment in cases of general peritonitis due to extension of pelvic peritonitis.

Discussion by: R. V. SMITH, Tulsa; REX WALKER, Pawhuska.

- 10. "Post-operative Thrombophlebitis and Emboli.——P. P. NESBITT, Tulsa. Discussion by: J. HUTCHINGS WHITE, Muskogee.
- 11. "Treatment of Peritonitis."—THOMAS G. ORR, Kansas City, Mo.
- 12. "Surgical Treatment of Exophthalmix Goiter."—FRED W. RANKIN, Rochester, Minn.
- 13. "Urinary Incointinence and Its Surgical Treatment."—BASIL A. HAYES, Oklahoma City.

  History and Etiology. Later surgical development with technique used by Author. Results.
- 14. "Relations Physical Variations Which Often Cause Dystocia."—W. W. WELLS, Oklahoma City.

Discussion by: M. B. GLISMANN, Okmulgee.

15. "Visceroptosis and Its Relation to Abdominal Surgery."—IRA B. OLDHAM, JR., Muskogee.

Congenital and acquired types. Discussion of symptomatology of treatment of acquired type. Case histories and results of treatment by author.

Discussion by: W. S. MASON, Clares

Discussion by: W. S. MASON, Claremore.

- 16. "Electric Cautery Treatment of Endocervicitis."—H. J. McGUIRE, Tulsa.

  The pathologic anatomy of endocervicitis. Discussion of methods of treatment with details of use of electric cautery. Comparative results.
- 17. "Preliminary Report on Maternal Mortality."—LUCILE SPIRE BLACHLEY, Oklahoma City.
- 18. "Spinal Anesthesia."—WM. C. VERNON, Okmulgee.

#### Section on

#### EYE, EAR, NOSE AND THROAT

- H. C. Todd, Chairman, Colcord Building, Oklahoma City.
- T. G. Wails, Secretary, 902 Medical Arts Building, Oklahoma City. Chairman's Address: "What Are the

Limitations in the Work of the Ophthalmo - Otolaryngologist?" — H. C. TODD, Oklahoma City.

- 1. "Asthenopia." CHAS. H. HARALSON,
- 2. "Complications Following Simple Mastoidectomy." - MARVIN D. HENLEY, Tulsa.
- 3. "Chronic Dacryocystitis." JOHN R. WALKER, Enid.
- 4. "Coloboma of the Iris Congenital."— L. C. KUYRKENDALL, McAlester.
- 5. Subject Not Announced .- A. C. McFAR-LING, Shawnee.
- 6. "Recurrent Retinal Hemorrhage With Report of One Case."—J. J. CAVINESS, Oklahoma City.
- 7. "Brain Abscess Complicating Mastoiditis With Report of Case."-J. P. Mc-GEE, Oklahoma City.
- 8. "Bronchoscopic Treatment of Lung Abscess With Report of Case."-J. C. McDONALD, Oklahoma City.

#### Section on

#### GENERAL MEDICINE

- C. K. LOGAN, Chairman, Hominy.
- P. M. McNeill, Secretary, Medical Arts Building, Oklahoma City.
  - 1. Chairman's Address.—CLIFF K. LOGAN, Hominy.
  - 2. "Hemorrhage of the Newborn." CLARK H. HALL, Oklahoma City.
  - 3. "Malarial Treatment of General Paralysis."—FELIX M. ADAMS, Vinita.
  - 4. "Pulmonary Tuberculosis." FRED H. CLARK, Washington, D. C.
  - 5. "Scientific Achievement of the Army Medical Corps." — RAYMOND E. SCOTT, Major, Medical Corps, Ft. Sam Houston, Texas.
  - 6. "Neuropsychiatry and Industrial Medicine."—ANTONIO D. YOUNG, Oklahoma City.
  - 7. "Relation of Physicians to the State Industrial Commission."—JUDGE L. B. KYLE, Oklahoma City.

- 8. "Bundle Branch Block." R. K. HAR-LAN, Temple, Texas.
- 9. 'Early Symptomology of Cardiac Decompensation." — HERMAN FAGAN,
- 10. "Post Influenzal Asthenia." WANN LANGSTON, Oklahoma City.
- 11. "Interesting Cases in Pyelographic Study."—SHADE D. NEELY. Muskogee.
- 12. "Hypothyroidism." HENRY H. TUR-NER, Oklahoma City.
- 13. "Hematuria."—J. W. ROGERS, Tulsa.
- 14. "The X-Ray Treatment of Goiter." -ARTHUR L. STOCKS, Muskogee.
- 15. "Heart Conditions."—A. B. CHASE. Oklahoma City.
- 16. "Colitis With Special Reference to Etiology."-L. A. TURLEY, Oklahoma City.
- 17. "Influence of Diet on Cutaneous Diseases." — C. L. BRUNDAGE, Oklahoma City.
- 18. "What Shall We Tell the Patient With Syphilis?" — E. L. YEAKEL, Oklahoma City.
- 19. "The Clinical Significance of Purpura." — LAWRENCE D. THOMPSON, St. Louis, Mo.
- 20. "Enlarged Thymus."—W. M. TAYLOR, Oklahoma City.
- 21. "Meningococcic Meningitis."—GEO. H. GARRISON, Oklahoma City.
- 22. "Dental Infections." A. B. LEEDS, Chickasha.

#### ANNUAL REPORT

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OF THE SECRETARY-TREASURER-EDITOR MAY 1, 1928, TO JUNE 30, 1929:

To Members of the Oklahoma State Medical Association:

In conformity with the Constitution and By-Laws, I herewith submit a condensed statement of our affairs for the time above noted.

All books, papers, duplicate deposit slips, vouchers and other papers pertaining to our business will be submitted to the Council for their action. All financial transactions have been certified to by Hugh A. Lewis, Commercial National Bank, Muskogee.

Membership: On April 30, 1928, we had 1577 members; on April 30, 1929, we had 1584 members.

Deaths in Our Membership: Since last year's report we have had to report the deaths of the following members, or former members:

Dr. J. G. Breco, Ada.

Dr. I. A. Briggs, Stillwater.

Dr. A. W. Coleman, Davenport.

Dr. R. J. Crabill, Allen. Dr. I. N. Cross, Cheyenne. Dr. W. D. Faust, Ada.

Dr. J. O. Brubbs, North McAlester.

Dr. Karl Haas, Harrah.

Dr. D. F. Janeway.

Dr. A. J. Jeter, Clinton.

Dr. J. K. Lindsey, Elmore City.

Dr. C. P. Linn, Tulsa.

Dr. J. F. Messenbaugh, Oklahoma City.

Dr. H. P. Pope, Caddo.

Dr. H. T. Price, Tulsa. Dr. W. H. Price, Eldorado.

Dr. W. P. Robinson, Sapulpa.

Dr. Mary T. Roudebush, Norman.

Dr. A. J. Smith, Pawhuska.

Dr. J. C. Taylor, Chelsea. Dr. Z. G. Taylor, Mounds. Dr. J. E. Webb, Tulsa.

Dr. N. D. Woods, Golden.

Medical Defense: The following cases are pending:

Creek County, No. 17817.

Tulsa County, No. Kiowa County, No. ....

Okmulgee County, No. 8802.

Oklahoma County, No. .....

Oklahoma County, No. 5468.
Seminole County, No. ...........
Ottawa County, No. ..........
Bryan County, No. ..........

Oklahoma County, No. 55,773.

Custer County, No. ..... Caddo County, No.

Oklahoma County, No. .....

In addition to these several cases are pending in which the status is not yet known as to wether suit has been brought or not.

Journal and Advertising: We have had a very successful year from the business standpoint, and not withstanding that we spent \$621.82 more for printing the Journal this year than in the past year, we hold a net gain of \$2142.93 over the total cash on hand at our report.

Without exception our advertisers are of the highest class; they well merit your support and should have it on all occasions.

The Journal: Despite strenuous efforts to gradually increase the size of our Journal, investigation shows it to be only 27

pages larger than the previous year. (This refers to the calendar years, 1927-1928); 1929 will be much larger. The difficulty lies in securing a steady flow of worthwhile original articles for publication. It is believed that our Journal will continue to increase in size during the coming year.

Finances: Herewith is condensed statement of the financial transactions since our last report:

## FINANCIAL STATEMENT

The Oklahoma State Medical Association Dr. C. A. Thompson Secretary-Treasurer-Editor May 1, 1929

#### Receipts

May 1, 1928, Balance cash on hand in	
bank	\$ 5,022.77
Advertising and Subscriptions	
County Secretaries	
Interest on Time Deposits	140.00
Exhixits. Tulsa, 1928; Okla City, 1929	378.50

### Total Receipts.......\$18,752.43

#### Expenditures

25th p Cartain at 100		
Printing Journal	\$	5,745.61
Miscellaneous Printing and Office Sup	)-	
plies		435.78
Office Rent	*****	364.75
Telephone and Telegraph		85.10
Stamps and Postage, Office & Journa		315.96
Press Clipping		60.00
Treasurers Bond and Audit of Book	S	75.00
Balance Expense Tulsa Meeting		150.17
Expense Oklahoma City Meeting, 192		18.20
Council and Delegates' Expense		505.91
Transfer to Time Deposit		2,500.00
Transfer to Medical Defense Fund		300.00
Salary, Extra Clerical Work		85.50
Salary, Mrs. Olatha Shelton		1,050.00
Salary, Dr. C. A. Thompson, Sec-Trea		2,250.75
Salary, Dr. C. A. Thompson, 1928		200.00
Refunds		14.00
retuings		14.00
Total	Ф	14 156 779
Total		

April 30, 1929, Balance Cash on Hand 4,595.70

\$18,752.43

May 1, 1929, Bal. Cash on Hand in Bk. \$ 4,595.70 Time Deposit, Commercial Nat'l Bank 4 Per Cent ..... 6,000.00

#### THE MEDICAL DEFENSE FUND

Oklahoma State Medical Association Dr. C. A. Thompson Secretary-Treasurer-Editor May 1, 1929

#### Receipts

May 1, 1928, Bal. Cash on Hand in Bk. \$	152.73
Dec. 18, 1928, Okla. State Medical Ass'n	300.00
April 20, 1929, Int. on Time Deposits	120.00

Total Receipts.....\$ 572.73

#### Expenditures

Attorneys Fees and Legal Expenses	\$ 250.00 222.73
Total	\$ 572.73 \$ 222.73
4 Per Cent	3,000.00
May 1, 1929, Total Cash Assets	\$ 3,222.73
May 1, 1929, Cash Assets Oklahoma Medical Association Medical Defense Fund	\$10,595.70
May 1, 1929, Grand Total Cash Assets	\$13,818.43
May 1, 1928, Cash Assets, Oklahoma State Medical Association May 1, 1929, Cash Assets, Oklahoma	\$ 8,522.77
State Medical Association	
Net Gain for Year	\$ 2,072.93
May 1, 1928, Cash Assets, Medical Defense Fund	\$ 3,152.73
May 1, 1929, Cash Assets, Medical Defense Fund	3,222.73
Net Gain for Year Total Net Gain for Year	\$ 2,142.93
Dogmostfully supposited	

Respectfully submitted,

C. A. THOMPSON,

Secretary-Treasurer-Editor.

(Signed): H. A. LEWIS,

#### Auditor.

Muskogee, Okla., May 11, 1929.

Dr. C. A. Thompson, Secy-Treas., Oklahoma State Medical Association, Muskogee, Okla.

Dear Sir: At the close of business April 30, 1929, the Oklahoma State Medical Association had a credit balance on our books, on open account, in the amount of \$4,595.70, and a time deposit of \$6,000.00, the time deposit being evidenced by the following certificates of deposit:

No.	18179,	January	30,	1929	(dated)	\$1,000.00
No.	18180,	January	30,	1929	(dated)	1,000.00
No.	18181,	January	30,	1929	(dated)	500.00
No.	19301,	April 20	), 19	929		\$1,000.00
No.	18302,	April 20	), 19	929		1,000.00
No.	18303.	April 20	). 19	929		1,500,00

At the close of business April 30, 1929, there was a credit balance on our books in the name of the Medical Defense Fund, on open account, in the amount of \$222.73, and on time deposit \$3,000.00, the time deposit being evidenced by the following certificates of deposit:

Yours very truly,

E. D. SWEENEY.

Vice-President.

#### COMMITTEE REPORTS

These reports are made in compliance with provisions of the new Constitution and By-Laws which call for publication of such matter in the issue of the Journal preceding the Annual Session.

## REPORT OF COMMITTEE ON TUBERCULOSIS

To the Oklahoma State Medical Association in Regular Annual Session at Oklahoma City, Oklahoma, May 27, 28, 29, 1929. The Committee on Tuberculosis desires to sub-

The Committee on Tuberculosis desires to submit for your consideration the following report, much of which is a repetition of last year's report.

In spite of the recent reduction in the death rate from tuberculosis in the United States, this continues to be the most important of all diseases, still retaining its age-long appeal because of its wide-spread incidence, its high mortality, its infectious nature, its social and economic significance.

In Oklahoma, with more than two million people, we must not fail to heed this appeal.

What are our resources?

In answer to this question, we must place the organized medical profession at the top of the list. The two thousand physicians in the state constitute our chief safeguard. All other organized agencies are either directly or indirectly dependent upon the medical profession.

The Oklahoma Public Health Association, which has been relatively inactive for two or three years, chiefly on account of limited finances, is again in the field with Dr. Carl Puckett as Executive Secretary. This organization, with all affiliated local tuberculosis societies, should have the loyal support of the medical profession. The chief function of these organizations is educational, and, if their work is properly directed, it should prove helpful to the local physician, and reflect credit upon his work. Chiefly through the influence of these organizations the child health education is carried on in the schools. This movement will ultimately prove to be one of the chief factors in the further reduction of the death rate from tuberculosis, and should have the hearty support of the medical profession.

The two state sanatoriums with a total of two hundred and seventy-five beds are constantly filled to capacity, with a waiting list of nearly one hundred, in spite of the fact that we have no definite state-wide plan for case finding. The sanatorium at Sulphur has one hundred and ten beds.

The Committee recommends:

- 1. That the members of the medical profession give hearty support to the State Public Health Association, and the local Tuberculosis Societies.
- 2. That the family physician should be the most important factor in any case-finding scheme, and that he should not only bear in mind

the importance of early diagnosis, in order that prevention and treatment may be more effective, but with the recent progress in the treatment of advanced cases he must be prepared to make a discriminating study of such cases with a view of offering every opportunity to the otherwise hopeless sufferer, and the possible control of a prolific source of infection.

- 3. That the number of sanatorium beds be increased to meet the recommendations of the National Tuberculosis Association, one bed for each annual death. We had thirteen hundred deaths in Oklahoma last year.
- That general hospitals be encouraged to provide for the reception, diagnosis, and, at least, temporary care of tuberculosis cases.
  - (a) In justice to the sick.
  - (b) In fairness to the public.
- (c) In order that nurses and internes may become familiar with the diagnosis and treatment of the disease.
- 5. That each county be compelled to cooperate with the state institutions in the care of their cases, and that they provide funds for their maintenance. The Committee also recommends that both County and State cooperate in an effort to take care of the open cases in homes where children are exposed to infection, regardless of the question of priority on the waiting list. Removing the source of infection is much more important and more economical than taking care of the children after infection takes place If new laws are necessary we recommend that these be referred to the Committee on Legisla-
- 6. That each county cooperate in the prompt disposal of transient cases, because of the menace to others. If it is impossible to place the responsibility upon the community where the patient formerly resided, the case should be accepted as a local obligation and handled as such. (Signed) L. J. MOORMAN

H. T. PRICE, (Deceased) D. LONG

#### CANCER STUDY AND CONTROL

President, Secretary and House of Delegates, Oklahoma State Medical Association:

We, your standing committee on "Cancer Study and Control" herein submit a report of the work which has been done upon cancer education since our last meeting—a large part of which was under our supervision or with our endorsement.

No state-wide, organized educational program has been undertaken though there has been a continuous quiet campaign in various localities -such as sending out leaflets and reprints prepared by the American Society for the Control of Cancer, encouraging symposiums upon the subject of cancer before county and district medical societies, and by the giving of public addresses upon cancer before audiences composed of both physicians and laity. We have been unable to ascertain the total of all such work done during the year though the major part is represented as follows:

There have been distributed throughout the state between two and three thousand leaflets upon the various phases of cancer—the majority of which booklets were edited by the American Society for the Control of Cancer, entitled "The New Idea of Cancer." This booklet is a general summary of what is known and unknown about cancer, and presented in such language that the non-medical individual can understand and appreciate. There have been ten or fifteen medical programs largely devoted to cancer, given before county and district medical societies. Ten or twelve public addresses by qualified physicians have been delivered before mixed audiences upon the subject of cancer. In each address, special emphasis has been given to early examination by the family physician of any suspected lesions upon the skin or any abnormal growths or discharges of the body.

We have recently contracted with the American Society for the Control of Cancer to furnish us the three-reel film prepared by Dr. R. G. Canti of Saint Bartholomew's Hospital of London, which is to be shown in three or more cities within our state. The exact dates have not yet been determined though will perhaps occur in the latter part of April or the first of May. This is the marvelous and much talked of film which was prepared at great expenditure of money and skill, which has so muchly thrilled and inspired physicians wherever it has been shown, both in England and in a few places within our United States. Briefly, it consists of moving pictures made of: (1) the normal cell growth and division; (2) the growth of malignant cells taken from the Jensen rat Sarcoma; (3) the same malignant cell reaction during and after it has been exposed to radium. It is expected that if this film meets with the favor which it has received elsewhere that our State Association or some other organization will desire to make such arrangements that it may be exhibited in several other parts of our state, that every physician may have its educational

Respectfully submitted. (Signed) EVERETT S. LAIN J. C. JOHNSTON L. A. TURLEY

#### REPORT OF THE COMMITTEE ON EDUCATION

To the Oklahoma State Medical Association, Oklahoma City, Oklahoma, 1929:

Medical education may be defined as the intellectual preparation of students of medicine so that they may be able to investigate the problems presented by the diseases, injuries and ab-normalities of human beings in an intelligent, logical, practical and useful manner. In this report the term "students of medicine" is employed in a broadly inclusive sense, and is intended to take in not only students in medical school, but all who are anxious to keep up with the advancement of medical science. The term includes particularly and emphatically practitioners of medicine.

Obviously and naturally, the medical schools establish the general standards of medical education, and these standards are in force and effect not only as they concern students in medical schools, but also, and with equal or greater force, as they concern active practitioners of medicine, because the ranks of practitioners are constantly replenished by the output of the medical schools. This being true, your Committee desires to call attention to certain matters of importance entirely under the control of medical schools:—

1. There should be continual and persistent effort to strike a balance between pure science and practical procedure. In order to do this the teacher of the sciences during the preclinical period should point out in some reasonable way the clinical application of what he teaches; and the clinician should always bear in mind and and should emphasize the direct relation of the basic sciences to clinical phenomena.

The physician worthy of the name is of necessity a scientist. In the immediate future this will be more true than it has been in the past, because it is more and more apparent that many clinical phenomena cannot be explained without technical scientific information.

Therefore, both preclinical and clinical preparation are indispensable. Either employed alone is but of little service in the intellectual preparation of the student. By giving to each its propepr value and by carrying them out together, the medical school lays the foundation for the making of a useful member of the medical profession.

2. The majority of medical schools confer the degree of Doctor of Medicine after the successful completion of the ordinary course of four years, without requiring the student to have supervised clinical training before receiving his diploma. This your Committee believes to be an error because it is manifest that a student is not able to successfully assume the responsibilities of an independent practitioner of medicine until after he has supervised clinical training. An additional and important reason for correcting the error is the uniform practice of medical schools to grant to the graduate a diploma in which it vouches for his adequate training in all the branches of medical science. The usual interpretation of the language of the diploma is that the holder is fully prepared to undertake any technical procedure, regardless of its complexity, gravity or danger to the patient. Under this rule, it is possible for the graduate, without any special preparation, to undertake the performance of dangerous surgical operations or other highly technical and dangerous procedures. Not only is it possible, but it is actually done by many physicians whose only training is what they have observed in class while in medical school. Not only do these untrained graduates undertake surgical operations that they are not prepared to perform, but they undertake the performance of many entirely useless operations because they do not have the ability and judgment, that can be gotten only by special training, to differentiate between those who need and those who do not need a surgical operation.

Your Committee believes that this situation should be corrected by medical schools through withholding the authority to perform elective technical and dangerous surgical operations until after the student has had special training approved by the school. In support of this, your own medical school has, in a recent meeting, recommended that, beginning with the class graduating in 1933, the diploma be withheld until the completion of at least one year of supervised clinical work in hospital.

The State might control the situation by law, but your Committee believes that it is nevertheless, a responsibility that rests upon the medical school, because the school, better than any other agency, knows the qualifications and the weaknesses of its students.

In this connection your Committee wishes to point out the necessity of applying scientific and clinical knowledge, together with ethical procedure, in the investigation of patients seeking aid at the hands of members of the profession. For example, your Committee happens to know of a fifty bed hospital where a far greater number of radical operations on the stomach were performed during a certain period than were performed by two other hospitals with an aggregate bed capacity of between four and five hundred. If the Biblical expression, "In a multitude of counsel there is wisdom," means anything this circumstance seems to indicate the need of inquiry from a rather broad educational point of view.

Apparenntly, the medical profession of this State is coming to be a very aggressive profession. It is industriously aggressive. There is a distinct tendency to spend time and money for the purpose of acquiring information. This is well, but your Committee would like to endorse the proverb, "Prove all things; hold fast that which is good." This is a commendable and useful course at any time; now such a course seems almost necessary, because it is pretty clear that many commercial concerns, apparently so assiduous in their efforts to educate the profession are, in fact, so much interested in the goods they are trying to sell that we should at least be excused for not enthusiastically endorsing their assumed role as teachers of the medical profession. Education is needed, but it should come from sources entirely removed from the realm of commercial influence. Fortunately, it is not only possible but easy, in the United States, to reach such sources, because they are represented by various councils created by the American Medical Association. With such effective and ethical machinery within our reach we should have no difficulty in securing definite and reliable information.

Since it is made up entirely of members of the faculty of the medical department of the University of Oklahoma, your Committee wishes to do no more than to call attention to the progress of our own medical school. For nearly ten years it has been an "A" grade school, and now there is not the least doubt about its standing, its importance, its influence. It is in all respects a stable institution. At this meeting the members of the Association will have opportunities to see something of its work and its facilities. If investigation shows that it is rendering a service of importance to the people and the medical profession of the state, your Committee presents it for your approval, endorsement and support.

Finally, your committee wishes to call attention to the great Code of Ethics of our profession. This code comprehends the duties of physicians to their patients and to each other. If its precepts were followed, no intentional wrong would be done, no mistakes would be made when within the power of individual members of the profession to prevent them. No helpless human being would call in vain for succor. There would be no selfishness, no rancor, no strife. This Code we commend, because in it is

contained the essence of all that is vital and good. We commend it because it is the firm foundation upon which all medical education should be built.

LEROY LONG,

Chairman
GAYFREE ELLISON
ARTHUR W. WHITE

## COMMITTEE ON CONSERVATION OF VISION

Blindness is a world wide catastrophe so disastrous in its results in many parts of the world that returning travelers from the Orient usually have as their most vivid picture a memory of groups of blind beggars strolling through the streets. There are at least six million blind people scattered throughout the world and many times this number of the near-blind, seriously handicapped by their poor vision.

There are many organizations attempting to fight this catastrophe and the prevention of blindness has become more or less the concern of every public health agency and the entire medical profession throughout the world. People have commenced to realize more and more that most blindness is unnecessary.

The prevention of blindness is essentially a health problem and all organizations in this line realize that they must secure not only the cooperation of practicing opthalmologists and general practitioners but also of those that are engaged in the more general aspects of public health.

Conserving sight should commence with the child and what is usually referred to as "getting the child ready for school" includes the protection of all visual errors or diseases, conditions which may result in harm to the eyes or health of the child. This is but the beginning; however, back of this we must go to the school room and see that it is properly lighted; that is, one-fifth or preferably one-fourth of the floor area should be represented in glass lighted area, a buff painted wall with a lighter coloring of cream or white for the ceiling, flat finished, and all furniture and woodwork finished flat without gloss to diffuse light evenly and prevent glare.

Next comes the arrangement of seats in relation to windows. The newest idea opposes having the seats arranged in rows parallel with the left side banked windows because such seating gives glare and eye discomfort to many near the windows and on the rear seats. The newer procedure provides for an entirely different arrangement of desks; a diagonal arrangement so that the light is properly received over the left shoulder, the child facing an inner corner of a room rather than a flat wall in the front of the room. Eye-ease and comfort are thus obtained and daylight is used to its best advantage. The teacher, in co-operation with the janitor, may do much to develop proper eye habits by adjusting the seat and the desk to proper height for comfort and reading at the fourteen inch distance, while maintaining a correct posture.

Another important feature in obtaining eye comfort is the regulation of natural light by the use of the proper type of window shade. The one recommended is the translucent, buff colored shade, operating from a double roller placed

in the middle of the window; one part rolling up and the other down. Care should be taken that the two rollers are placed so close together that no streak of light comes through the sections and the shade should be wide enough to admit of no light coming in at the side of the window. Arrangement should be made for artificial lighting which may be used on dark days so that the child can continue his work as well as he could with sunlight.

It has been the theory for years that light should be excluded from the room occupied by a patient suffering from measles but the Nattional Society for the Prevention of Blindness have taken this matter up and recommend the following to avoid eye complications during measles:

- 1. Banish fear of light in the measles sick-room.
- 2. Seek eye comfort with adequate light and an abundance of fresh air.
  - 3. Strive for extreme cleanliness.
- 4. Place the head of the child's bed toward the window.
- 5. Arrange artificial lighting equipment so that during the few hours that artificial light may be required no possible glare may annoy the patient.
  - 6. Follow out the physician's directions.

Impaired vision and blindness as a result of venereal diseases are rapidly becoming eradicated, principally through the medical and health societies and also the education our army received during the world war and it is now an uncommon thing for us to have eye diseases of venereal origin, although it has been only a few years since there were a great many of them.

Large corporations employing hundreds of men find that their employees are much more efficient if they can do their work in a building with proper lighting and fresh air.

In summing up the Conservation of Vision, your Committee wish to lay special emphasis upon the following:

- 1. Prevention of eye infection of babies.
- 2. Examining eyes of children when they are ready to enter school.
- 3. Caring for the school children's eyes and eliminating all hazards in industrial workers.

  E. S. FERGUSON,

Chairman L. C. KUYRKENDALL W. ALBERT COOK.

## REPORT OF COMMITTEE OF STATE MEDICAL SOCIETY ON CRIPPLED CHILDREN

The Committee met officially October 28, 1928 and passed upon the following:

The purpose of the Committee shall be,

- 1. To study the problems which concern the medical profession in respect to the care of crippled children.
- 2. To recommend and pass judgment upon procedures of the Oklahoma State Society for the care of crippled children so far as such measures relate to the medical profession.

3. To act in the capacity of advisors on behalf of the medical profession upon legislative measures, hospitals, clinic, and so far as such activities pertain to the care of crippled children.

The State Society for Crippled Children, represented by its secretary, Joe N. Hamilton, met with the committee and made requests for assistance upon the following activities.

- To endorse the clinics for the examination of crippled children as they have been conducted by this Society for the past three years.
- 2. To approve form letters and publicity which are sent out announcing each clinic.
- 3. To approve the method of advising and obtaining treatment for the cases which may be benefitted by hospitalization.

The committee reviewed all such forms and methods as they are now being carried out and voted its approval. The forms and methods referred to are as follows.

- A form letter to doctors of the community announcing the clinic in a certain locality in which the name of the orthopedic surgeon is announced, and an invitation is given to the local doctors to attend and assist.
- 2. A form letter to the school teachers, ministers, civic clubs, lodges, in which the names of no doctors are mentioned but which describes the type of cases expected, where the clinic is to be held and the date of the clinic.
- 3. A letter to the parent of the crippled child which has been examined, stating what the examining doctors recommend in the case and naming institutions to which the child might be taken for treatment.

The Committee passed favorably upon these measures.

Further request was made by the secretary of the Society that the Committee assist in the following:

- 1. Prepare and approve articles upon subjects relative to crippled children which might be used in educational matter to the public.
- 2. That this committee assume the responsibility of informing the profession of the state as to the crippled children's law and methods of putting them into effect.

EARL D. McBRIDE

#### TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

A Case of Tuberculosis of the Pubic Bone. G. Serra. Arch. Italiano di Chir., xxi, 57, Apr. 1928.

The case notes refer to a youth of fifteen years. The first symptoms began at the age of eleven years, after an injury, and coincided with the formation of abscesses in the postero-internal region of the right thigh in the trochanteric region; never fever, and no articular rigidity of the hip. The abscesses, treated originally surgically, developed fistulae resulting in a state of

profound cachexia. In this condition and with severe limitation of the function of the ankle, the patient came under the observation of the author. For a long time conservative treatment was tried, which gave very slight improvement. A sequestrotomy of the pubic bone was then done. The operation was successful so that the fistulae healed. The general condition became good and walking fair.

The author dwells upon the radiographic diagnosis which was possible by the aid of injections of dense paste through the fistulous tracts. In regard to treatment, he holds that waiting may be useless when concerned with extensive lesions and complicated with fistulae and sequestra and that conservative treatment may be useful only in the recent cases. In order not to interrupt the pelvic girdle which would cause irreparable damage, the author insists that the resection should be done as economically as possible.

Changes From Pressure On The Articular Cartilage In Experimental Unreduced Dislocations of the Hip. E. Polacco. Arch. Italiano di Chir., xxl, 85, Apr. 1928.

For the purpose of studying the endurance of the articular cartilage exposed to pressure in a non-physiological site the author performed a series of experiments upon the rabbit. The animals were always very young, (from two to four months). The author affected dislocation of the hip joint, made sure that reduction did not occur and finally left the animals free until ambulation produced a traumatizing action upon the femoral head. The animals thus treated were twenty-four; the duration of the experimental period from a minimum of eleven days to a maximum of four months. The animals were periodically radiographed,

The author reports of his experiments both the macroscopic aspect of the femoral heads and the results of histologic studies which were pursued. From the total of the experiments the author concludes that pressure in a site not physiologic causes, in the diarthrodial cartilage, changes more or less profound, which are situated always at the point where the traumatizing stimulus is most markedly felt. The alterations, macroscopic as well as microscopic, were much more severe in those cases in which the luxation was of longer duration; here the subchondral medullary spaces were found open and in communication with the joint cavity. In some cases there existed indication of fibrosis of the marrow

The bone tissue has a tendency to proliferate and to become eburnated at the point of underlying the degenerated cartilage. The alterations observed, although not being equal to those of osteitis deformans, may, according to the author, be the basis for the secondary development of deforming osteo-arthritis when concomitant causes aid it.

Clinical Contribution to Arthroplasty of the Elbow. Anglesio. Gior. d. R. Accad. di Med. di Torino, lxxxix, 135, 1926.

A schematic description of four arthroplasties of the elbow.

The first is for an ankylosis secondary to a rheumatic polyarthritis. The arthroplastly was

done with interposition of fascia lata. Two years after the operation, flexion and extension were normal.

The other three observations refer to posttraumatic ankyloses. The first case: A man of forty-eight years, ankylosis following a severe fracture of the lower extremity of the humerus. Two years from the operative intervention, flexion was possible to an angle of 50 degrees, extension to 140 degrees, supination through an angle of twenty degrees.

The second case: A man of thirty years, ankylosis at right angle from a fracture of the epicondyle. Eighteen months after the operation, a normal amount of flexion was possible, extension to 170 degrees, supination limited.

The third case: Ankylosis following a comminuted fracture of the inferior epiphysis of the humerus. One year from the intervention, all movements were possible to a normal degree.

In the cases reported by the author, healing of the operative wound was by the first intention, and mobilization exercises were started on the eighth to the tenth day and continued for two or three months. All the patients at the end of that period were able to return to their regular occupations. The author, comparing the fibrous tissue intersition with the subperiosteal resection of the method of Ollier, prefers the fibrous tissue method because the results are more satisfactory and the mobilization easier and the period of re-education briefer.

Myofascitis From an Orthopedic Standpoint. Fred H. Albee. J. Am. Med. Assn., xcl, 1364, Nov. 3, 1928.

Myofascitis is a local inflammatory reaction in the muscle fascia, with symptoms referable to the fascial attachment to bone. The source of toxemia is from the colon in ninety per cent of cases. Frequently, when a primary focus is removed at the tonsils, the teeth or elsewhere, there has already developed a metastacit infection in the colon which may prolong the myofascitis unless treatment is directed to restore normal function in this organ. One hundred and sixty-four cases of myofascitis have been treated and another one hundred examined.

The diagnostic sign is pain at the insertion of fascia to bone, when tension is made, and the presence of tenderness if the point can be reached. Many cases are erroneously diagnosed,-sacro-iliac strain, lumbago, occupational strains, neurosis, etc. Patients with indefinite low-back pains or symptoms to this character referable to other points should be examined for all sources of infection and particularly for evidence of abnormal colonic function. The stool examination in the myofascitis cases show typically acid reaction, low percentage of colon bacilli, decrease of gram-negative flora, histamin in large quantities, and frequent evidences of mucous colitis.

Treatment is local and general. Measures that relate directly to colon infection are first to cleanse the bowel by medicated irrigations, followed by colon bacilli implantations. With proper diet, eliminating sugars that are disturbing, and restricting meats and proteins, the colon will function normally and the outcome in many cases will be striking.

#### EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

Aseptic Cavernous Sinus Thrombosis, Todd, H. C.: Arch. Otolaryngol. 1928, viii, 138.

Todd states that lateral sinus thrombosis is the result of extension by contiguity of tissue. Following inflammatory processes within the temporal bone due to infection, the membranous sinus becomes surrounded by inflammatory tissue and frequently lies in a pool of pus. The inflammation then involves the vein, causing the intima of the vessel to throw out a sticky exudate which picks up the red and white blood corpuscles and other constituents of the blood and forms an aseptic thrombus. If the pus is not removed by prompt operation, the vessel walls soon soften. When this occurs the surrounding bacteria readily penetrate them and the thrombus becomes infected. A new syndrome is then presented and the blood picture is that of bacteraemia. If operation is not performed at this time, the infected thrombus begins to break down and the symptoms and blood picture are those of septicaemia.

Todd believes that all lateral sinus thrombi are aseptic during the formative period, and that lateral sinus thrombi are not formed as the result of the direct passage of micro-organisms into the lateral sinus or of an infected embolus into the sinus.

He reports a case in which the patient developed first a mild infection of the sphenoid sufficient to cause inflammation of the contiguous cavernous sinus and the intima of the cavernous sinus threw out sufficient exudate to pick up the red and white blood cells and blood platelets to produce a thrombus. However, as the sphenoidal sinus has a rather large opening for natural drainage and sphenoidal infection always tends to become cured spontaneously, resolution took place before the infection had broken down the membranous walls of the cavernous sinus and allowed the bacteria to infect the thrombus.

The Histopathology of Mastoiditis, Stewart J. P.: Proc. Roy. Soc. Med., Lond., 1928, xxi, 1743.

In his discussion of mastoiditis, Stewart includes not only inflammation of the pneumatic cells in the mastoid bone proper, but also all ex-

tensions into neighboring bones.

The initial change in the directly infected zone is a local rise in the blood pressure causing a dilatation of the vessels in the haversian systems and hyperaemia of the muco-endosteum.

The next stage is characterized by osteoclasis in the haversian systems.

The third stage is the period of active rarefaction of the bony wall of the pneumatic space by osteoclasts and perforating vessels. This is due to the new pressure conditions.

The fourth stage consists in the regeneration of destroyed tissue by new bone formation.

The whole inflammatory process is subject to phase-change which may alter it from a condition of exudation with an increase in the intravascular pressure into a more proliferative condition.

Both the disease and the regenerative pro-

cesses progress from within outward.

The Hoffmann-LaRoche Chemical works have secured a tract of land at Nutley, New Jersey, 12 miles from New York City and are there erecting their new laboratories. Ground was broken with appropriate ceremonies last November and the construction work has been pushed with such vigor that it is hoped the company will be able to move from their present quarters 19 Cliff Street, New York City to New Jersey early in May. Dr. Emil Barell, Director of the Hoffman-LaRoche activities in Europe, was present at the November ceremonies and turned the first shovel full of earth. Mr. Elmer H. Bobst, General Manager of the company made an address full of hope and faith in the growth and success of the Roche organization.

This company manufactures a large number of Council accepted products that are advertised in the official State Medical Journals and readers of this Journal will naturally be interested to know of the new developments which make it possible for the Hoffmann-LaRoche Company to greatly increase their production. This has been their dream and now the dream has come true

Edward L. Keyes, New York (Journal A. M. A.. Feb. 4, 1928), insits that the clinical malignancy of bladder tumors must be distinguished from their cellular malignancy. Before the advent of the cystoscope and the high frequency current, bladder papillomas were clinically malignant. Now they are clinically as well as pathologically benign. Today one may ask of a treatment for bladder tumors that it shall control papillary carcinomas as well. In order to accomplish this, the treatment must permit bladder suture without drainage, so that tumors or portions of tumors that have been overlooked or not destroyed may be identified by cystoscopy and biopsy within a month after operation. For the intelligent interpretation of operative results, it is also essential that a single therapeutic measure (knife, electric cautery or radium) shall be employed to destroy each tumor. Radium seeds of metal, implanted through a cystoscope or by open operation and aided by fulguration or further cystoscopic or operative implantation, fulfil these indications. Repeated implantation of numerous metal seeds, however, produces sloughs, and results in grave bladder spasms, just as the glass seeds used to do.

## State Board of Medical Examiners, meeting at Oklahoma City, March 12th, passed the following applicants:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Gradua- tion	Home Address or Previous Location
Allen, William P. Boyer, Herbert Luther Butler, Osee C. Canada, Ernest Adolph Cole, William Cleveland Daily, Henry Jackson Fulcher, Joseph Garrison, George Harry Grant, Shelley Clair Harbison, Edgar Frank Hetherington, Albert J. Kemmerly, Harry Paul King, Louise Smith Starr, Norman Smith Pavy, Chester Arthur Peterson, Edward Nohl Trice, Spencer Talley Veazey, John Hobson Barker, Robert Eugene Bryant, F. V. Fowler, L. W. Gentry, Marvin C. Goodwin, Rufus Q. Gordon, Douglas M. Hudson, David Venable Moore, Hiram Dunlap Randall, Osmer Samuel Davis, John Pearson	1858 1886 1886 1898 1874 1899 1874 1898 1883 1901 1874 1901 1895 1888 1882 1900 1896 1901 1874 1871 1871 1871 1871 1871 1871 187	Eagletown, Ind. Harmony, Ark. Grapevine, Ark. Independence, Miss. New Windsor, Ill. Millersburg, Ky. Ola, Ark. Pearl, Ill. Clay Brook, Tenn. Harrell, Texas Trenton, Mo. Perry, Ark. New York, N. Y. Paris, Ill. Greensburg, Ind. Florence, Wis. Nashville, Tenn. Texas Jumping B'ch, W. Va. Henderson, Tenn Teal, Mo. Ava, Mo. Salem, Ark. Toronto, Canada Sinchang, China Plymouth, Vt. Fort Worth, Texas Lexington, Tenn.	Physiomedic Ind. Univ. of Arkansas Univ. of Arkansas Univ. of Tennessee Creighton Southwestern Homeo Univ. of Tennessee Washington Univ. Gate City Med. Vanderbilt Tulane Med. Univ. of Arkansas Columbia Univ. Univ. of Michigan. Univ. of Michigan. Univ. of Michigan. Univ. of Minnesota Vanderbilt Univ. of Minnesota Vanderbilt Univ. of Texas K. C. Med. Hering Med. American Med. Col. Washington Univ. Univ. of Colorado Univ. of Toronto John Hopkins Rush Med. Col. John Hopkins Rush Med. Col.	1911 1917 1925 1901 1926 1924 1903 1927 1907 1928 1923 1921 1911 1925 1924 1926 1900 1905 1899	Oklahoma City Ft. Towson. Okla. Seminole, Okla. Ada, Okla. Boynton, Okla. Boynton, Okla. Oklahoma City Tulsa, Okla. Oklahoma City Seminole, Okla. Oklahoma City Tulsa, Okla. Lawton, Okla. Oklahoma City Tulsa, Okla. Lawton, Okla. Oklahoma City Terre Haute, Ind. Tulsa, Okla. Seminole, Okla. Madill, Okla. Kansas City, Kans. Martins Mill, Tenn. El Dorado, Kansas Oklahoma City Oklahoma City Oklahoma City Oklahoma City Tulsa, Okla. Norman, Okla. Oklahoma City Mangum, Okla.



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Mceting Place, 1929, Oklahoma City.

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Latimer	E. L. Evins, Wilburton	E. B. Hamilton, Wilburton
LeFlore	E. F. Collins, Panama	W. J. Hunt, Poteau
Lincoln	J. W. Adams, Chaudler	J. M. Hancock. Chandler
Logan	Pauline Barker, Guthrie	R. F. Ringrosc, Guthrie
Marshall	W. D. Haynie, Kingston	J. L. Holland, Madill Ivadell Rogers, Pryor
Mayes	Sylba Adams, Pryor	
McClain	R. D. Williams, Idabel	O. O. Dawson, Wayne R. H. Sherrill, Broken Bow
McCurtain	,R. D. Williams, Idabel	W. A. Tolleson, Eufaula
McIntosh	D. E. Little, Eufaula	H. C. Bailey, Sulphur
Murray	O. W. Sprouce, Sulphur	
Muskogee	R. N. Holcombe, Muskogee	A. L. Stocks, Muskogee. B A. Owen, Perry
Noble	E B Delger Newsto	
Nowata	F. R. Dolson, Nowata	J. R. Collins, Nowata
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	John F. Kuhn, Oklahoma City	R. L. Murdoch, Oklahoma City
	L. B. Torrance, Okmulgee	M. B. Glismann, Okmulgee
Osage	J. G. Shoun, Fairfax	M. E. Rust, Pawhuska
	C. A. McClelland, Miami	J. W. Craig, Miami
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Payne	R E. Waggoner, Stillwater	L. A. Mitchell, Stillwater
Pittsburg	J. A. Munn, McAlester	F. L. Watson, McAlester
Pontotoc	W. H. Lane, Ada	C. F. Needham, Ada
Pottawatomie	Eugene Rice, Shawnee	W. M. Gallaher, Shawnee
I'ushmataha	D. W. Connally, Clayton K. D. Jennings, Chelsea	J. A. Burnett, Dunbar
Rogers	K. D. Jennings, Chelsea	W. A. Howard, Chelsea
Seminole	T. H. Harrison, Wewoka	J. D. McGovern, Wewoka
	A. M. McMahan, Duncan	J. W. Nieweg, Duncan
Texas	W. J. Risen, Hooker	R. B. Hayes, Guymon
Tillman	J. C. Reynolds, Frederick	J. E. Childers, Tipton
	C. T. Hendershot Tulsa	Mary Edna Sipple, Tulsa John D. Leonard, Wagoner
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Washington	G. V. Dorsheimer, Dewey	J. V. Athey, Bartlesville A. H. Bungardt, Cordell
Washita	G. T. D	
	C. L. Rogers, Dacoma	O. E. Templin, Alva C. E. Williams, Woodward
Woodward		C. E. Williams, Woodward

NOTE—Corrections and additions to the above list will be cheerfully accepted.

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#### KANSAS CITY ANNUAL FALL CLINICAL CONFERENCE

of the

KANSAS CITY SOUTHWEST CLINICAL SOCIETY OCTOBER 7, 8, 9, 10, 11, 1929, KANSAS CITY, MISSOURI

Headquarters and Meetings at President Hotel.

OPERATIVE AND DIAGNOSTIC CLINICS daily from 8:30 to 11:30 at Allied Hospitals. A COMPLETE POST-GRADUATE COURSE at the President Hotel. Twenty Classes each morning. CLINICS AND CLINICAL LECTURES each afternoon by the following distinguished guests:

- Dr. Chevalier Jackson, Philadelphia, demonstrating the uses of the bronchoscope and the removal of foreign bodies from the bronchi of the lungs. He will also give an address on "Pulmonary Congestions".
  Dr. George W. Crile, Cleveland, will give an address on "The Surgical Abdomen" and will hold a surgical diagnostic clinic.
  Dr. Thomas McCrae. Philadelphia, giving a clinic on "Unusual and Usual Medical Cases". He will give an address on "Differential Diagnosis of Certain Chest Lesions".
  Dr. Bela Schick, Austria and New York City, will demonstrate his famous "Schick.

- Lesions".

  Dr. Bela Schick, Austria, and New York City, will demonstrate his famous "Schick Test", give a clinic and an address on "Feeding Problems in Children".

  Dr. William Allen Puscy, Chicago, will hold a clinic on "The Diagnosis and Treatment of Certain Skin Diseases". The subject of his address will be "The Use of Helio-therapy in the Treatment of Certain Skin Lesions".

  Dr. Robert Osgood, Boston, will give an address on "Newer Methods in Treatment of Arthritis" and a clinic on "Polyarthritis".

  Dr. J. C. Litzenberg, University of Minnesota, will give an account of his latest research on "Tubal Pregnancy", and will hold a clinic on "The Differential Diagnosis of Tubal Pregnancy".

  Dr. Vilary P. Blair, St. Louis, will give a clinic and demonstration of "Plastic Work on the Face", and an address on "Newer Methods of Skin Grafting".

Additional distinguished guests will be announced later.

#### ENTERTAINMENT:

Public Meeting, Monday Evening. Golf Tournament, Friday Afternoon Get-Together Smoker, Tuesday Evening. Golf Dinner Friday Evening. Alumnae Dinners, Wednesday Evening.

## **Ergosterol Derivatives**

Among the ergosterol products manufactured by Mead Johnson & Company the following are of particular interest to medical research workers, biochemists and physicians:

ERGOSTEROL, Spectroscopically pure ERGOSTEROL, Purified, 98-99%, for irradiation ERGOSTERYL ESTERS

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A similar advertisement appeared in the Journal of Biological Chemistry in January, 1928

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Evansville, Indiana

## THE JOURNAL

OF THE

### OKLAHOMA STATE MEDICAL ASSOCIATION

OLUME XXII

MUSKOGEE, OKLAHOMA, JUNE, 1929

NUMBER 6

#### THE PROGRESS OF MEDICINE\*

CLAUDE T. HENDERSHOT, M.D. TULSA

It is with a feeling of pleasure, indeed. that I assume the presidency of this organization. My teaching as to the benefits to be derived from organized medicine came in the early days of my medical career, and from no less a teacher than our dear departed friend, Dr. J. N. McCormack of Bowling Green, Kentucky, for years national organizer for the American Medical Association. I had been practicing my profession but a few short months in southern Indiana when I discovered that the county possessed no local medical society. At a called meeting in my office a short time afterwards, one was formed, small it is true, for there were not many physicians within the county—but we were active, and despite the bad roads and worse weather conditions, managed to get together at least once a month. Our affiliation with the state association was a forward step, and it was the writer's pleasure, while still a very young man, to hold various important offices in our state association.

Locating in Tulsa in the fall of 1905, I again found a county without a medical society, and again it was my privilege to bring about the organization of a county society. Attending my first state association meeting in 1906 at Shawnee, it was my good fortune to meet the leading men of the state of Oklahoma in my chosen profession, and I see before me tonight, men whom it was my pleasure to meet in those early days, and whom I have numbered as my friends through these many years. It has ever been my endeavor to attend all state meetings of this association, and I have been honored by many important offices in the same. I was indeed pleased when the delegates at our meeting in Tulsa saw fit to elevate me to the presidency and futile at the most would

\*President's Address, 37th. Annual Session. Oklahoma City, May 27-29, 1929.

be any effort upon my part to attempt to thank them for this honor. I hope by my acts to merit the confidence you have placed in me, and my constant endeavor during my term of office shall be the upbuilding and improvement of our association.

One of the first duties of the president of this organization is to prepare and deliver an address before his colleagues and the public who are sufficiently interested to attend. In attempting to formulate a subject for this address my mind kept retrospectively glancing back over the years and the accomplishments thereof, of the profession of which I have, in my humble way been a part. Thus it was that the subject, "The Progress of Medicine," occurred to me, for we who sit here tonight have been privileged to practice in the greatest age medicine has ever known. In the opinion of the writer, greater progress has been made in the past thirty years than in any three hundred years previously.

Ante-dating our period, a few outstanding events must be considered. The discovery of chloroform and ether banished pain and suffering and transformed the operating room from a chamber of torture—so much so that our dearly beloved fellow physician, Dr. S. Weir Mitchell was prompted to write this beautiful poem:

"Whatever triumph yet shall hold the mind, Whatever gifts shall yet enrich mankind, Ah, here, no hour shall strike through all the years, No hour so sweet as when hope, doubts and fears, 'Mid deepening silence, watched one eager brain, With God-like will, decree the death of pain."

Lord Lister, a few years later, gave surgery his antiseptic methods of treatment, and erysipelas, gangrene and blood poisoning in all its forms, no longer presented the grim spectre that unnerved the operator and made surgery so dreaded by the laity. With instruments of precision coming into vogue about this time, along with more scientific laboratory methods, the guess was taken out of diagnosis. Roentgen had perfected his X-ray machine and improved the technique, so that we knew whereof we spoke, when a hitherto un-

known problem presented itself to us. The introduction of diphtheria anti-toxin at about the time I began my first interneship, gave us a reliable and dependable agent that we were far too slow or skeptical to adopt.

Full well do I remember the apprehension attendant upon my first administration of this preventive measure, and the enthusiasm of my medical colleagues and the highly interested populace when the experiment, for such it was, proved a success. And I am proud to say tonight that I am not yet beyond the experimental age. When we become so full of complacence that we feel that we no longer need the advice of others, to counsel or experiment, our usefulness as a member of this profession has ceased. Think of the years some of our most noted research workers have given to a single subject and how gladly they have passed the information on to others when they have achieved their goals.

In our hospital routine we come in contact with the younger men in the profession, eager to profit by our experience, and it is our pleasure to aid them in the essentials of diagnosis and treatment. We are training better doctors, teaching them to use their own brains and to make use of the senses with which nature has endowed them.

The laboratory, with its trained technicians, has created an undeniable place in the progress of medicine—the minority group, if you will, yet to the untiring zeal and persistence of these we owe much of our present day knowledge and methods of combatting disease. Long, Morton, Jackson and Simpson did not discover the value of anesthetics in a day. Jenner and Harvey wrought many long years to perfect their technique and instill into a doubting majority, a belief in their theories. Stephen Hales, a country preacher, with a guill in a blood vessel of his favorite horse's neck, was not promulgating in his own mind any scientific idea; yet from his crude method of treatment for obscure equine disturbance has come an instrument of precision that is in daily use by the average practitioner. We clinicians are inclined at times, I fear, to place too much credence upon laboratory findings. There exists a need of closer co-operation between the laboratory and the clinician. A close physical proximity to each other will be of mutual benefit. True, we find in the highly specialized laboratory worker, often, the need of a more practical medical background, and a little more technical knowledge might prove of benefit to the man in general medicine. All knowledge is of practical importance, the only point to remember is that some knowledge is more immediately practical than other knowledge.

So with a more closely connected action, scientific medicine will make more rapid strides, all of which will redound to the benefit of those who seek our counsel. True, some of our most startling achievements in the period of which I speak have been accomplished in the laboratory. I need but mention the names of Noguchi, Rosenow, Banting, George F. and Gladys Dick and my hearers among the medical fraternity at once associate these names with some recent discovery that spells "Progress in Medicine."

Serums and vaccines, many and varied, are now a part of our armamentarium. This phase, however, has been so commercialized that I hesitate to name any particular agent. However, we all recognize the far-reaching effect of typhoid immunization. The horrors of field hospitals and army camps have disappeared since their prophylactic administration. Rabies vaccine and anti-tetanic serum are known and used by all and no one denies their efficacy. Anti-streptococcic and anti-meningeal vaccines are also fast finding a place of confidence with the profession. Many are of doubtful virtue and are exploited by their manufacturers from a strictly commercial point of view. Research workers have yet to isolate a definite organism for many of the most infectious diseases, such as mumps, measles, chicken-pox small-pox, sleeping sickness, etc., and yet known by us to be easily transmissable from one human being to another. The discovery of new vitamins has determined the causative factor of some diseases and proper feeding along these lines has found a ready response in their curative powers. The ever-dreaded pernicious anemia has surrendered surrepticiously to a diet rich in liver extract and an ever-increasing interest in the endocrines, or ductless glands has led to the production of extracts, mono and poly, popularly promulgated as cure-alls but recognized professionally as of benefit specifically in certain limited conditions only. The study of allergy is foreign to most of us and yet, scientific cures are being wrought by a true interpretation of the causative factors in such diseases as asthma and hay fever and the careful and considerate administration of the proper pollen extracts for their relief. Radium, with an ever widening sphere of usefulness, is becoming more popular as the profession becomes better acquainted with its adaptability both as a preventive and a curative measure. Rental laboratories make it available in most all sections of the country. However, I do not sanction its indiscriminate use by those untrained in its administration. The field of intravenous therapy is so vast that we shall give it but passing notice. The introduction of carefully prepared medicinal agents directly into the blood stream has brought about a revolution in therapeutic procedure and yet experience has taught us that only in special selected cases can we expect the realization of our fondest hopes as to its expediency. The study of basal metabolism has produced a standard index of diagnostic value in some of the more obscure disorders, and further advancement is anticipated with continued application of its valuable assistance in diagnosis. The use of the electro-cardiograph in the study of heart diseases is another step forward, rendering diagnosis more exact and revealing conditions of the heart muscle which it is difficult or impossible to get by other means.

In this short resume it has been impossible for the writer to mention the many accomplishments of the profession during the period we have attempted to cover in this paper. We have endeavored to strike the peaks of progress and lay special emphasis upon those of consequence, and so great has been the progress that we may have omitted to mention some very important discovery or accomplishment and thereby lay ourself open to criticism. No attempt has been made to touch upon the advances in surgery, for one far more able than I will bring this subject to your attention this evening. Medical education has been hard pressed to keep stride with advancement made in the field of practice. The metamorphosis has been so marked both in clinical and didactic teaching, that should a graduate of the late nineties again visit his alma mater, he would be astonished at the difference in methods. I do not hesitate to venture the assertion that we of that glorious and never-to-beforgotten period, practice less than 20 per cent of the ideas and theories our hardworking faculties attempted to impress upon us during our student days. In keep-

ing with the general trend of this paper, I have attempted to show how the sciences upon which medicine is based, the methods of their application, the conception of the physicians as a whole, and the attitude of the public as to the service demanded, have been kaliedoscopic in the variety of their changes and today, as the old order changeth, we stand upon the threshold of a new and wonderful era in medicine So inspiring are the improvements in the curriculum that I, like Wm. J. Mayo, feel that I would like to be a freshman again and be able to partake of the vast feast of learning of the present day. I sentimentally deplore the curtailment of the field of the general practitioner, but I am also broad minded enough to recognize the importance of the men in specialized lines. However, I cannot reconcile myself to the ever-ready-made-to-order specialist dumped from the college amphitheater upon an unsuspecting public, without the foundation of at least a few years' general practice to acquaint him with the fundamentals of true medicine—clinical diagnosis, without which no man is thoroughly trained to enter any specialty.

Quoting from a recent address of Dr. Lewellys F. Barker, "The general practitioner is still of great importance for public welfare, but his activities are and must be, supplemented by those of a large variety of medical and surgical specialists. A general diagnostic survey of a patient suffering from any obscure malady requires, today, the co-operation of several persons, a fact of which the consumer of medical services is, himself, becoming ever more aware, as is shown by the increasing tendency of patients to resort to diagnostic clinics." No wonder then (with such striking alterations in knowledge, in technique, in conceptions of the province of medicine and of the functions of practitioners, and in actual medical practice) that reforms in medical education become compulsory. Naturally the standards of requirements in medical schools have been raised—as well as pre-medical studies, and hospital interneships have to be made a part of the curriculum.

In closing I wish to pay my respects to those pioneers of medicine in Oklahoma who sit before me tonight, who have endured the hardships of early-day practice in a sparsely settled country. Without hospital facilities, laboratories or trained nurses, they blazed the trail that has made possible the accomplishment of much of

the progress we have spoken of in this address, and who, according to Stanley, "have always looked for the best in others and have given the best they had, whose lives were an inspiration and whose memory will be a benediction."

507 Medical Arts Building.

#### RECENT ADVANCES IN SURGERY\*

## IRVIN ABELL, M.D. LOUISVILLE, KENTUCKY

Allow me to express my appreciation of the honor you have done me in extending through your president, an invitation to address you.

The subject which has been suggested to me, "Recent Advances in Surgery", is an attractive one in that it permits one to wander at will through unlimited fields of alluring interest. The science of medicine and surgery has shown far greater progress during the past third of a century than at any similar period in its history. To those of us who have been fortunate enough to have observed at first hand the developments and attainments of the last thirty years there has been unfolded a panorama of scientific accomplishment replete with absorbing interest and stimulation for the student and pregnant with vast possibilities in the recognition, alleviation and cure of human ailments. Until the beginning of the present century surgery consisted largely in the application of mechanical principles to the solution of pathological problems without the knowledge and safeguards which have since been evolved, while the acquisition of surgical knowledge followed chiefly along empirical lines. Today the advance is chiefly along biochemical and biophysical routes both as regards diagnosis and treatment, physiologic research affording the basis upon which such study is made.

The intensive tilling of the surgical field has resulted in the growth of many surgical specialties: intensive study by the various specialty groups concentrated upon organs and systems of organs has thrown a flood of scientific light upon many problems whose explanations had heretofore remained elusive. The recent world war presented many questions which pressed for solution, furnishing the impetus and material for study which eventually resulted in the elaboration of already estab-

lished specialties and, as well, in the development of many new ones.

Neurologic surgery, thoracic surgery, orthopedic surgery and oroplastic surgery have been fostered and developed enormously within the last decade under the auspices furnished by the recent war. To attempt to enumerate the advance made by these particular groups would necessitate a rewriting of the surgery of the ailments covered in their domain. Tics and neuralgias are now readily and safely relieved and many patients with brain and spinal cord tumors, formerly considered hopeless, are now restored to useful activity and spared the distressing paralysis and blindness of prolonged invalidism. Abscesses and tumors of the lung, bronchiectasis, pulmonary tuberculosis, tumors and strictures of the esophagus, injuries and diseases of the heart, in some of their phases, are proving susceptible of help, at times even of cure, at the hands of intrepid surgeons whose achievements in this field offer a promise of what yet may be done. Orthopedic surgery has shown marvelous advance in reconstruction and rehabilitation procedures, particularly in overcoming the crippling disabilities of paralysis and the deformities of bone and joint disease and injury. One has but to familiarize himself with the work of the various state crippled children's committees to see the beneficent results of the application of well thought-out surgical principles in restoring to lives of usefulness the many who were formerly classed as helpless cripples. The oro-plastic surgeon, with his advanced knowledge of bone and skin grafting, combined with an uncanny ingenuity of making and using them, is able to so nearly restore faces to their normal contour that previously distorted and disheartened individuals are now given the opportunity of resuming unafraid and unabashed their places in community life.

In the field of general surgery the advances have been no less remarkable: with your indulgence further discussion will be limited to some of these which appear to have the greatest practical value for the general surgeon.

Radium in the treatment of uterine pathology has attained an established position, while it has not proved as widely efficacious as at first thought to be, its results in certain conditions have been demonstrated to surpass those of any other

<sup>\*</sup>Delivered to the General Meeting, Oklahoma State Medical Association, Oklahoma City, May 28, 1929.

treatment herètofore employed. Its use in the treatment of cancer of the cervix has eliminated the blood loss, trauma and prolonged anesthesia which obtained in every radical operation for this lesion and at the same time greatly lessened the mortality and morbidity. The ultimate results as related to prolongation of life and apparent cure compare favorably or excel those of operation. All but the most advanced cases can be benefitted to some extent by its employment and though they finally succumb to the disease, they are frequently spared the suffering induced by the hemorrhage and infection from the foul, sloughing, vaginal mass. Since 1921 we have adopted radium as the treatment of choice in cancer of the cervix, and have been rewarded by having series of patients treated in this and succeeding years now well and free from evidence of recurrence. In cancer of the body of the uterus, radium holds second place to surgical removal, but there exist definite indications for its employment as the treatment of choice in patients whose physical condition prohibits the employment of a major surgical operation and in those in whom there is demonstrable evidence of extension of the disease beyond the uterus, in the latter instances being used as a palliative measure for the control of bleeding. We have patients in this group living and well from four to eight years after the initial treatment. In fibromyomata of the uterus radium finds, within certain limits, a rather wide range of usefulness, its limitations being determined by the age of the patient, by the size of the tumors and their situation, by pedunculation, by tumor degeneration and by adnexal disease. In the treatment of functional uterine bleeding, radium stands practically as a specific, finding in this field its most brilliant and consistent successes. Previous to its advent resort was had to repeated curettements and finally, in not a few instances, to hysterectomy, for relief of continued bleeding, a relief now readily compassed by radium in dosage suited to the age of the patient and the result desired, namely, reduction in flow or its complete cessation.

The marked improvement in the pre-operative study and preparation of patients and, as well, in the post-operative care of them has constituted a definite advance, in that operability is increased and mortality is decreased. Safety in surgery has become the keynote of modern surgical at-

tack, built up on biophysics and biochemistry, an appreciation of the living pathology and a correct evaluation of the patient's resistance. Insulin in the hands of our medical confreres transforms the diabetic from a noli me tangere into a fair surgical risk, tolerating operative procedures well which before its introduction carried an inevitable mortality. The addition of iodine to the regime in which the factors of safety were sought in preparing hyperthyroid patients for operation has paralelled in brilliance of result the role of insulin in preparing diabetics for surgical measures. In most cases it has obviated the necessity for protracted periods of rest and serial operations; polar ligations and unilobar resections with consequent long morbidity are but seldom necessary, the entire operation being accomplished at one sitting with greater safety than was before possible. The mortality has been reduced to approximately one per cent and the ultimate results are such that there can be no longer any debate as to the relative advantages and dangers of operation as contrasted with other methods of treatment formerly in use.

The preparation of the prostatic, formulated upon his blood chemistry, renal and cardiovascular findings has greatly enhanced the safety of operation, transforming inoperable patients into operable patients, converting bad risks into good risks, largely by relieving the burden upon the kidney and enabling it to regain, in whole or in part, its efficiency. Adequate preparation of patients in whom resections are to be made in the course of gastro-intestinal tract contributes much in the lowering of mortality. If there be obstruction high up in the intestine, rapid dehydration and loss of chlorides with an increase in blood urea rapidly lead to a fatal termination. The blood chemistry shows a high carbondioxide and low chloride content, the interpretation of which is alkalosis and not acidosis, requiring chlorides and saline, not alkalies. The work of Haden and Orr in showing the persistent vomiting of obstruction to be due to an alkalosis, readily determined by a study of the blood chemistry, has resulted in the first appreciable lowering of the high mortality attending this condition. If the obstruction be in the colon, preliminary enterostomy permits of proper preparation and at the same time avoids the danger of resecting and sutering edematous bowel. In patients who are dehydrat-

ed and devitalized, fluids, dextrose and blood transfusions are essential to a restoration of proper balance. The employment of the last two in maintaining nutrition and increasing vital resistance in preparing for surgical procedures and as a means of treatment in combatting toxemias and infections constitutes one of the most valuable advances of recent years. The physiology of the blood serum has shown it to contain a rather constant amount of dextrose which provides energy for the body and is its chief caloric source. When the vital processes are reduced to a point below par by shock, injury or disease, the administration of dextrose with saline or Ringer's solution intravenously furnishes the serum with the salts normally contained therein together with the dextrose. At times the concurrent administration of insulin furnishes an element which the pancreas, as a result of depression, may not elaborate in sufficient amount for the proper utilization of the dextrose. In post operative acidosis, water and dextrose alone usually suffice; if in the course of such administration, particularly if it be long continued, sugar appears in the urine, the exhibition of a small amount of insulin will make the remedy more efficient. When the stomach is intolerant of food, or when physiologic rest of the gastro-intestinal tract is desired for repair following operation, nutrition can be satisfactorily maintained for days by this method, much more so than by subcutaneous and rectal routes. In surgery of the biliary tract, pre-operative study and preparation are the keynotes to success. When one considers that the liver is the largest and one of the most important biochemical factories in the body, being interposed between the portal and systemic circulations, performing multiple functions, each of which is essential to bodily welfare, the importance of its dysfunction becomes readily apparent. While all of the functions of the liver are important, three are especially so to the surgeon, namely, storage of glycogen, synthesis of urea and secretion of bile. "Carbohydrates are used as glucose, stored as glycogen in the liver, the excess being deposited in the body as fat. Unfortunately fats can not to any considerable degree be reconverted into glucose; furthermore, sufficient glucose must be available to maintain combustion of fats. Any disease of the biliary tract which induces changes in the liver cells interfering with this ability to store and distribute glucose to the tissues results in a two-fold

toxemia, the production of acetone and diacetic acid from the combustion of the higher fatty acids and the overproduction of protein waste in the effort to supply the lacking glucose. Proteins, can to a considerable extent be converted into glucose, but they contain nitrogen. Under the stress of hepatic disease, sufficient glucose not being available, the protein tissues of the body are broken down for the purpose of producing it and the resultant excess of nitrogen must be eliminated in the urine as urea and ammonia. The kidnevs may be unable to excrete this excess of nitrogen which then accumulates in the blood, for the most part as urea, producing toxemia, of which uremia is a manifestation." The intravenous administration of dextrose to supply the glucose deficiency and of an abundance of water to act as a solvent and diuretic in the elimination of nitrogenous material from the blood are sheet anchors in the preparation of patients presenting biliary tract disease. Interference with the outflow of bile results in cholemia, a toxemia due to the absorption of bile pigments and bile acids into the blood, one of the results being a prolongation of the clotting time of the blood. Intravenous injections of calcium chloride and the employment of whole blood transfusions materially hasten the coagulation time of the blood and assist in the neutralization of toxic bile pigments. A satisfactory test for the estimation of hepatic function is still lacking; in hepatic dysfunction the blood chemistry reveals the hypoglycemia and the increased blood nitrogen, while the icterus index and Van den Bergh reactions indicate the degree and extent of the cholemia, the combined findings affording positive information upon which to base pre-operative and operative treatment.

The advances that have come in anesthesia lie chiefly in the recognition of the merits of each anesthetic and its application in its particular sphere of usefulness. The technique of regional bloc, local infiltration, sacral and spinal injections has been so improved that they are finding an ever widening field of usefulness. The increased danger of lipoidal solvent anesthetics in the surgery of the biliary tract over those not possessing such qualities, gives the preference to the latter, gas-oxygen, ethylene, spinal or local infiltration. Pulmonary disease, renal degenerations, cardiovascular changes, brain tumors are instances in which a discriminating selection of anesthetic is necessary. Synergistic anesthesia connotes a definite gain, particularly in bad risk cases.

In addition to the correct evaluation of changes in the body chemistry made possible by a study of the blood, the diagnosis of intra-abdominal and intra-thoracic lesions as a result of improvements in radiological technique has reached an astonishing degree of scientific accuracy. With the opportunity for examination gastric carcinoma can be recognized early, affording an increasing number of patients the opportunity of cure which surgical resection alone offers. Gastric and duodenal ulcers can be detected with an accuracy approximating 95 per cent, a proportion not approached by any other means short of exploration. Obstructions and filling defects indicative of neoplasms in the colon are readily located long before a mass can be detected by palpation. Early recognition and appropriate preparatory treatment have both reduced the mortality from operation and increased the number of permanent cures following it. Graham and his asociates in 1924 introduced a test consisting in the administration, orally or intravenously, of the iodin and bromin salts of sodium and phthalein which eliminated by the liver in the bile, gives radiographic findings upon and by which gall bladder function can be determined. It is today regarded as the most valuable and dependable single laboratory method of diagnosing disease of the gall bladder. It is essentially a test of gall bladder function in that filling of the gall bladder permits of visualization of its size and shape depending upon its power of concentration, and diminution of its shadow coincident with emptying of the gall bladder as a result of contraction induced by the ingestion of food into the stomach. Variations from this normal indicate disease: when administered intravenously, or granting absorption of the dye when administered orally, failure of the gall bladder to visualize is indicative of cystic duct obstruction, constituting the most reliable sign, afforded by the test, of cholecystic disease. If visualized, faintness of shadow indicates failure of concentration due to disease; irregularities in shape and contour are suggestive of pericholecystic adhesions. Mottling of the gall bladder shadow is suggestive of stones, while persistence of shadow in bold relief after ingestion of cream represents delayed emptying dependent upon changes in gall bladder wall. The personal equation invariably enters into the interpretation of these various changes from the normal but with adequate experience it has proved reliable. In fact with the accumulated experience at hand it has been shown that positive interpretations have been, as a rule, borne out at operation with the greater percentage of error in interpreting a normal functioning response as indicating no cholecystic disease. Until further experience has revealed its exact limitations cholecystography must be regarded as preeminently a test of gall bladder function rather than a method to depict actual disease of the gall bladder. "Cholecystographic findings must be supported by a history of observations suggesting cholecystic disease before a patient is submitted to operation, and at the same time it must be borne in mind that a patient with a normal cholecystogram may have a history characteristic of gall bladder disease which is confirmed at operation."

A consideration of your patience forbids a review of the various changes, developments and improvements in the surgical treatment of lesions in the various organs and systems of organs, notably the increased indications for splenectomy based upon a study of the blood and the role of the spleen in its physiologic and pathologic aspects, the tendency toward cholecystectomy in preference to cholecystostomy, the management of pancreatic disease in association with biliary tract infections, and the noteworthy advance in operations for cancer of the colon and rectum. The surgical treatment of peptic ulcer affords a fruitful topic for discussion, the tendency in gastric ulcer being toward more radical resections, while that in the duodenal ulcers is toward conservatism, gastro-enterostomy, with or without the excision or destruction of the ulcer or one of the several pyloroplasties, being the operation of choice. It is to be noted that at present there is a definite school of thought in the profession, which, holding that where there is no acid there is no ulcer, have adopted subtotal gastrectomy as the operation of choice for all ulcers, gastric and duodenal. The secretion of gastric enzyme and hydrochloric acid is influenced by four factors: first by sight and smell, the impulse being carried through the vagus; second, by a hormone or secretogen activated by the presence of food in the antrum of the stomach; third, by a hormone or secretogen ac-

tivated by the presence of food in the upper intestine, and fourth, by a basal or continuous influence of unknown character. Resection of the stomach and of the left vagus nerve eliminates the two most important factors in the secretion of hydrochloric acid, resulting in anacidity. It is claimed by the adherents of this procedure that further ulcer formation will not occur after its employment. The abolition of hydrochloric acid from the gastric secretion is not in line with physiologic principles and conceivably may be a handicap to health even though no stomach symptoms may exist. The employment of such extensive resection for the cure of a small duodenal ulcer must at present be regarded as a development in the solution of the problem presented by peptic ulcer rather than an advance, since time and observation will be required to evaluate its worth.

Finally, one of the greatest contributions which surgery has made to medicine is in the field of pathology. The pathology of the dead, a most excellent foundation, has been supplanted by the pathology of the living. In the former, terminal lesions only can be studied, while in the latter they are observed in all stages from incipiency to the and. Gross and microscopic changes in organs which have been the subject of clinical study can be correlated with the signs and symptoms thereby elicited and observed. Opportunity is afforded for both physiological and pathological investigation and upon the knowledge so gained, to formulate scientific, rational diagnosis and treatment, and to predicate still further advance in the science of medicine.

WHAT ARE THE LIMITATIONS IN THE WORK OF THE OPHTHAL-MO-OTOLARYNGOLOGIST\*

H. COULTER TODD, M.D., LL.D. OKLAHOMA CITY

At one of our interstate medical meetings one of our leading ophthalmologists from Texas, presented a most interesting case of brain tumor upon which he had previously operated, whereupon, one of our good men from Kansas stated that he would like very much to discuss the paper, but he did not believe the case report had any place in an eye, ear, nose and throat section of a medical association.

Not long ago I was called out into the State to operate upon a patient with brain abscess of otic origin. While in the town, one of the doctors, in all kindness, raised the question as to whether such work did not belong to the general surgeon.

Again, I took it upon myself to operate upon enlarged glands of the neck, the results of infected and diseased tonsils, and one of my colleagues, a general surgeon, with good intent, called me over the telephone and asked me if I did not think I was getting out of the field of my specialty.

These and other incidents have raised the question with me, and hence I present the matter for your consideration. What are the proper limitations in the work of the eye, ear, nose and throat specialist? In other words, where should the ophthal-mo-otolaryngologist retire in favor of the general surgeon? The answer to this question I think resolves itself into the answer of another natural interrogation, namely, who is the best qualified to do this related surgery?

A little more than three decades ago the work of the eye, ear, nose and throat specialist was largely medical. Since that time, however, a great change has taken place, so that, whereas previously 90 per cent of this work was medical, now, probably 75 per cent is surgical. You will observe that among the prominent specialists along these lines in Great Britain, the qualified men possess the degree of F. R. C. S. rather than the F. R. C. P. The same is true of these specialists in America, where the duly qualified receive the F. A. C. S. rather than that of F. A. C. P. Admitting therefore, that our work allies us with the field of surgery more than it does with that of medicine, it is well known that the sphere of our operations are confined to the head and neck. This being the case, we have a right, to assume at least, that the otolaryngologist as a whole are more conversant with the anatomy and physiology of this portion of the human body than are the general surgeous who must cover the whole field of human anatomy.

Again, all the work of the eye, ear, nose and throat men has to do with the etiology, symptomatology, pathology, diagnosis and treatment, surgical or medical, of diseases of important organs and structures in the head and neck, whereas the general surgeon would needs be equal-

<sup>\*</sup>Chairman's Address, Section on Eye, Ear, Nose and Throat, Annual Session, Oklahoma City, May 28, 1929.

ly proficient in the whole field of human surgery. I believe, therefore, that it must be admitted, without further discussion, that the ophtalmo-otolaryngologist must of necessity be better prepared to do the surgery of his specialty as well as all the related surgery of the head and neck.

Just as the field of medicine was found all too large for one man to make himself proficient in all its parts, and men began to specialize, so in recent years has the surgeon begun to greatly increase his skill and efficiency by narrowing his field of operations, so that today we have one surgeon of whom I know, who practically confines his entire work to the mastoid. The time has come when our greatest surgeons are asking to narrow the sphere of their operative work rather than to extend it. Greater skill, covering a less extended service means a wider reputation as a surgeon and hence larger financial returns, than less skill in a much broader sphere.

The hesitation, therefore, in our ranks, if there is any, regarding the possible danger of encroachment on the field belonging to the general surgeon is a mistake because there is a natural association between the affections of the eye, ear, nose and throat and their adnexa. We should not be satisfied with the mere treatment of these organs but should make ourselves the more competent to include also the adnexa and the complications.

Intranasal infections at first limited to the schneiderian membrane may involve the antrum of Highmore with an extension to the superior maxillary bone itself; it may involve the ethmoid and sphenoid cells or the frontal sinus, or by way of the cribriform plate or the communicating vessels, the meninges of the brain, or even the brain itself. The rhinologist of today should not be satisfied to treat this simple and primary infection of the mucous membrane of the nose, but he should be the best qualified to follow up the complications, operating upon the various accessory sinuses of the nose if need be, and extending his work if necessary even to the brain.

I believe there is a vast field of surgery that is being done indiscriminately and not very well, that the otolaryngologist should do and do skillfully. I have endeavored to give some considerable attention to this work, and it has proven very satisfactory and not wholly unprofitable.

Many varieties of external nasal deformities have been and many still are being performed by the general surgeons, notwithstanding the fact that in most cases intranasal surgery also is required, in order to obtain the best results.

As some writer whom I do not now recall, stated in a recent article, "The lips, gums, jaws, palate, salivary glands and ducts, cheeks and tongue are being treated in a miscellaneous manner, some by general surgeons, some by dentists, or what are known as oral surgeons, and some by the otolaryngologists."

"Such conditions as hare-lip, congenital staphyloma, neoplasms, inflammatory diseases and angioneurotic oedema. Of the gums and jaws we have epulis and other neoplasms, paradental and dentigerous cysts, periostitis, abscess and necrosis. Of the palate, cleft palate and other congenital defects, paralysis, neoplasms and inflammatory diseases. Of the salivary apparatus, salivary calculi and cysts or ranulae, abscess and neoplasms of the gland proper. Of the tongue, black tongue, and other keratoses, tubercular and syphilitic diseases, congenital shortening (or absence) of the frenum, otherwise known as tongue-tie."

Furthermore it has been shown in recent years that lymphatic structures of the mouth, nose, nasopharynx, pharynx and larynx drain into the various glandular regions of the neck, and their enlargement or infection is in direct proportion to the infection of these lymphoid structures within these cavities. Conversely, with the clearing up of the primary infection will the glandular disease disappear.

The removal of neoplasms and various operations of the external ear offer a field for our consideration, while the many complications of a mastoid infection, such as sinus thrombophlebites, brain abscess, abscess of the neck, secondary to Bezold's variety of mastoiditis and meningitis, all call for special training and surgical skill.

The general surgeon is often called upon to do the neuroplastic operations for facial paralysis notwithstanding the fact that the condition may be the result of some disease of the temporal bone, or an operation for the cure of such an existing pathology.

In this short sketch I have been able to mention only a few, mostly surgical, of the conditions which come to the attention of the ear, nose and throat specialist, touching little if at all upon the ophthal-mological phase of the subject.

This work naturally falls within the sphere of this specialty, therefore it not only becomes our duty to make ourselves the most proficient to do it, but the profession as well as the people as a whole, in the proper way, should be brought to recognize the source to which they should turn if they are to receive the best possible service.

In most instances the general surgeons, or at least those who wish to do the best work, already recognize the immensity of the task that is theirs, and will welcome those of us who will claim the right by virtue of superior training and ability, to render all medical and surgical treatment for the eye, ear, nose and throat, and their adnexa.

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#### "KEEP THE WELL BABY WELL"\*

#### T. H. McCARLEY, A.B., M.D., F.A.C.P. McALESTER

In the annals of warfare the battle-cry, or slogan, is given a place of influence beyond an accurate reckoning. We need only to be reminded of, "On to Moscow," "Remember the Alamo," and "They shall not Pass," to feel that in every instance the slogan had its part in steeling the will of men to do or die. Likewise, in any civil cause in which the interest of those concerned is to be aroused, the potency of a well chosen verbal expression of motive is unquestioned. In Chicago, the Child Welfare Association has taken as its slogan, "Keep the Well Baby Well." I have chosen to use this, in a somewhat restricted application, as the theme of what I shall say to you this evening. The child in the period of its infancy, or first two years of its life, is the baby under consideration. In the prevention of sickness among babies, such agencies as the Public Health Nurse, Mothers' Clubs, The National Bureau of Maternity and Infancy, and the State Department of Health, are powerful in their influence. However, I shall not discuss their activities, or the physician's relation to them, but rather the part of the family doctor, or pediatrician, in keeping the well baby of his private practice well. 'Tis a task impossible of perfect accomplishment, but worthy of the mettle of the best of us. Phillips Brooks has said, "He who helps a child helps humanity with an immediateness which no other help given to human creature in any other stage of human life can possibly give again." To whom is there not the deepest urge to help in the infant, so plastic, so responsive to good care, yet so susceptible to a multitude of besetting ills?

"Sweet flow'ret pledge o' meikle love, And ward o' mony a prayer, What heart o' stone wad thou na move,

Sae helpless, sweet and fair."

Most of us who do pediatrics, do obstetrics also, and thus have the opportunity to advise the mother during pregnancy, and the puerperium with reference to the care of her baby. I think that the obstetrician who does not do pediatrics should suggest to the mother that she place her baby immediately under the care of a pediatrician. I advise her to bring the baby to my office once a month during the first year of life, and once every three months during the second year; explaining that, if considered from the economic standpoint only, this course is highly profitable. At these monthly visits the baby is weighed and examined, and the mother is advised as to the baby's diet, general hygiene and medication if indicated.

That the baby should be breast fed in every instance where possible, is an oft repeated statement that requires no argument. Its importance warrants its repetition. Dr. Oliver Wendell Holmes is quoted as having said that there is more wisdom as to nourishment of the baby in the two domes on the mother's breast than in all others. We would not be fanatical as to this, but remember that the baby must have milk sufficient in quantity and quality, and if he can't get it at the breast, he must have it partly or wholly from the bottle. When the baby is three months old, he should be given one bottle feeding each day even if the breast milk is adequate. At this age he will readily take the bottle, whereas a few months later it may be a very difficult matter to persuade him to take it. As a consequence of this refusal on his part, he may get in a condition of serious malnutrition when the mother's milk becomes insufficient in quantity or quality.

What shall we put in the bottle? A food that (1) contains the necessary calories,

<sup>\*</sup>Oration in Pediatrics before the General Session of the Oklahoma State Medical Association, May 29, 1929.

(2) is properly balanced in proteins, fats and carbohydrates, (3) is sterile, (4) is assimilable and (5) contains the necessary vitamins. I am not here to advocate one milk formula above another, but to insist that some such requirements as those just stated be met in the food which is prescribed. We should direct the feeding of the child in a scientific way, adapting the food to the individual case. Such adaptation should be made, not in a haphazard, try-this-and-see-if-it-will-work sort of way but with an intelligent effort to interpret the baby's needs and prescribe accordingly. Sweetened condensed milk is not a properly balanced food and, too often have I seen the soft, fat baby who had been fed exclusively or largely on it, wilt under an acute infection like a hot-house plant before the noonday sun. Raw cow's milk is never sterile and should be boiled, or at least pasteurized. Cow's milk, invaluable as an infant food, is most easily contaminated and is the ideal culture medium for many strains of harmful bacteria. If all milk fed during the first two years of life were boiled and properly cared for subsequent to the boiling, summer complaint would probably be almost an extinct disease. Tis true that vitamin C, which prevents scurvy, is destroyed by heat, but this is readily supplied by orange and tomato juice. How infrequently have you seen scurvy and how frequently have you seen enteric infection. The objection oftenest heard to boiled milk, and that usually from the mother, is, "But boiled milk is so constipating." Invariably there recurs to me the expression of an eminent pediatrician, "Thank God for the consti-pated baby." Constipation rarely becomes serious and is overcome with comparatively simple measures.

Dr. Blachly, of the Department of Maternity and Infancy, has kindly furnished me with the reported deaths under two years of age in Oklahoma during the year 1927. The total is 4103, of whom 1264 were coded as dying from premature birth and injury at birth. Next in number to this group stands enteritis with a total of 894. I leave it to your imagination to estimate the number who were ill with enteritis but recovered. Correct feeding is doubtless the salient factor in our defense against enteric infection.

Cod liver oil is begun the first month of life, five or ten drops three times a day, gradually increasing to one teaspoonful three times a day by the third or fourth month. This is done because of the influence of vitamin A on growth, but for the more important reason that vitamin D is needed for the prevention of rickets, by long odds the most important nutritional disturbance of the first two years of life. When the weather permits sun baths, cod liver oil may be omitted on the days these are given.

A good deal is being said and written about irradiated foods and drugs as a substitute for cod liver oil in the prevention and treatment of rickets. In the present state of our knowledge, there are at least two valid objections to their use. First, they do not contain the growth producing vitamin A as does cod liver oil. Second, the standardization and dosage of these products is still in the experimental stage. Ergosterol is the most frequently mentioned and highly lauded of the irradiated There is no doubt that a minute drugs. amount of this given daily will prevent or cure rickets, but it is possible with it to produce hypercalcaemia in the rat; hence it is evident that this drug should be carefully standardized, and the dose be accurately determined before the general use of it for babies is advisable. As to the irradiated foods on the market, their vitamin content is perhaps too small to render them of much value as antirachitic agents. One pound of one of these, a cereal, has a vitamin A content, by the analysis which the manufacturers submit, equal to that of only two thirds of a teaspoonful of cod liver oil.

What is rickets and what are its consequences if permitted to go on its way unmolested? We know at least this, that in rickets there is a deficiency of blood calcium and phosphorus. The patient with rickets has less than the normal amount of calcium and phosphorus in his tissues and an increased amount in the stool and other excretions. As he recovers, these findings are reversed. The results, or late manifestations of this disease, such as bow-legs, knock-knees, depressed sternum and other bony deformities, are unmistakable. The orthodontal appliances, which are now seen wherever there is a group of older children, are among its monuments. A well developed case of rickets displays a galaxy of characteristic markings, as delayed and irregular dentition, late closing of the fontanelle, craniotabes, Harrison's groove, the rosary, protruding abdomen, box-shaped head and enlarged spleen. Before these become noticeable, a bare spot on the back of the head due to restlessness, wakefulness and free perspiration are early rachitic warnings. But the meat of this thing is that the rachitic baby is readily susceptible to infections, the non-rachitic baby is highly resistant. This is particularly true of infections of the respiratory tract. The non-rachitic have little trouble from rhinitis, tonsillitis, and bronchitis and almost never have pneumonia of any type. In Oklahoma in the year 1927, we find pneumonia, with a total of 504 deaths, fourth as a cause of infant mortality. This alone is an eloquent sermon on the text, "Give the baby codliver oil, or a sun-bath every day."

Though I am not going into the infant's diet in detail, permit me, in passing, to emphasize the importance of giving vegetables as a preventive of anaemia. These should be begun about the fifth or sixth month.

May we now turn to a consideration of the prevention of transmissible diseases.

Since there is no age at which a child is immune to smallpox, he should be vaccinated, probably about the sixth month. Vaccination needs not to be emphasized to convince us of its value, but merely as a reminder of a thing of proven worth which we are so prone to neglect.

Active immunization against diphtheria by means of toxin-antitoxin has received widespread acceptance by the public and general endorsement of the medical profession. There is ample evidence of its efficacy. For instance, in Auburn, New York, a city of 35,000, where 85 per cent of the school children have been immunized, it is reported that in three years, the number of cases has been reduced from eighty-five to five a year, and deaths from fifteen to one a year, and that one a guestionable case of diphtheria. Before the babe is a year old, he should have three injections of toxin-antitoxin. It is not necessary to use the Schick test before giving these immunizing doses, but it should be made 60 or 90 days later. If positive, one or two more injections should be given, for we have learned that three injections do not immunize every case. One word about the season of the year at which these injections should be given. We know that most cases of diphtheria occur in the fall and winter. It is easy to get parents interested in the prevention of a disease when it is prevalent in the community and equally as hard to interest them when they are not hearing much about it. In spite of this helpful psychic factor, I have consistently refused to give preventive innoculations in the late fall and winter. This is, of course, because for 60 or 90 days after toxin-antitoxin is given, the child's resistance to diphtheria is not improved and probably lessened. It is only fair to the child to give the injections in the spring or summer, besides, should a child who has had toxin-antitoxin develop diphtheria shortly afterwards, the method of prevention comes into disrepute.

If the means of prevention of the other contagious diseases were as effective as are those for the prophylaxis of smallpox and diphtheria, we should be equally as positive in recommending such inoculations against them as are available, but unfortunately they are not.

As to whooping cough, I should give pertussis vaccine to the baby only in case of definite exposure. It is not 100 per cent effective and such immunity as it confers is of unknown duration.

The method of immunization against scarlet fever by the Dick method has been employed for only a relatively short time, hence it is impossible at present to make other than tentative statements, which may require more or less modification in the light of further experience. The most suitable dosage, the duration of the immunity, and whether or not an induced active immunity to scarlet fever is produced are matters for the future to determine.

If, in this brief presentation of this subject, I have made both you and me a little more interested in keeping the baby well, I have accomplished my purpose.

To quote from Dr. Gerstley, "This method of practice certainly is a method of the future. It provides a satisfactory income for the physician, but this income comes not from the occasional unfortunate child and unfortunate parents, but from every single patient in one's practice. But better than affecting the income, it fulfils the ideals of the physician and it makes the parents happy. Seeing your little patients develop into healthy, happy children changes medical practice from drudgery and strain to a real pleasure. This new viewpoint elevates the practice of medicine to the position where it really belongs. It makes professional ideals compatible with professional welfare."

#### ACUTE GASTRIC DILITATION\*

## L. J. STARRY, M.D., F.A.C.S. OKLAHOMA CITY

Students of surgery have, in the past, manifested a tendency to emphasize surgical technique to the detriment of surgical diagnosis, pre-operative or post-operative treatment. That this is not a true conception or evaluation needs no argument, only emphasis. There can be no doubt that with the great advances in surgery as a science and art there must be necessarily advances in post-operative observation and treatment. (1) Reder has aptly termed the first five days following laparotomy as the period of surgical crisis, and the importance of close observation over such a critical period cannot be overestimated. Many of our patients who have been unable to withstand the additional burden placed upon them by surgical treatment might have survived had post-operative treatment been the product of timely reflection and prompt, fearless management, rather than the quotient of one hour divided by the number of our patients in residence in the hospital. What an illuminating boast it is when a surgeon makes the statement that he never sees his patients following operation! With the hope that this presentation may impress on us the importance of post-operative care, we now proceed to a consideration of one of the most commonly overlooked. incorrectly diagnosed and lethal post-operative complications, namely, acute dilitation of the stomach.

In 1872, at about the same period when Lister's antiseptic technique was first provoking discussion, Hilton Fagge described clearly the condition of acute gastric dilitation in his papers in Guy's Hospital report. Since that time close observers have recognized the signs and symptoms in increasing numbers. However, the number of cases which has been proven by post-mortem examination has been comparatively small. The reason for this will be made apparent later.

Although the majority of cases of acute dilitation occur following laparotomy, the condition is not only found within such narrow confines. It has been stated that any toxic condition may predispose to its appearance. It has been found in the new-

born and in patients 86 years of age. It is somewhat more prevalent in females than in males. Exhaustive states, such as typhoid fever and pneumonia may end fatally as a result of this condition. It therefore behooves the internist to closely observe the abdominal viscus and not be content with a close observation of the heart alone. Dilitation of the stomach, while not as rapidly fatal, will never-the-less result similarly to that of dilitation of the heart, if unrecognizzed and untreated. Several cases have been reported following artificial and spontaneous pneumothorax. The application of a plaster jacket for Potts' disease, or deformity, injuries in any part of the body, more especially the spinal column and cord, extensive burns and chloroform narcosis all may operate as predisposing factors. Linke, in 1914, reviewed 173 cases, 68 of which occured without operation or narcosis. It is quite certain, however, that any operative procedure which rapidly reduces the cubic dimensions of the abdominal cavity, such as Caesarian section and oophorectomy for cyst, without providing for additional support of the cavity, will not uncommonly result in dilitation of the stomach. Gall bladder operations and even gastro-jejunostomy, may be the forerunner of this complication. My personal observation has resulted in the discovery of four cases: one, following caesarian section, one after cholecystotomy, one after gastro-jejunostomy and one following hysterectomy.

As regards the physiologic cause of gastric dilitation, a review of the literature results in the statement that it is concerned wholly with the nerve supply of the stomach. (2) There is either a paralysis of the vagi or excessive stimulation of the sympathetics, with the preponderance of opinion being in favor of the former. Rough or excessive handling of the viscera, prolonged mesenteric tension and long anaesthesia are all factors in favoring the appearance of the condition. One who has once suffered from gastric dilitation is doubly prone to manifest it a second or third time.

Post-mortem examination discloses an enormously dilated stomach, at times filling the entire upper and left side of the abdomen, as far as the brim of the pelvis. The walls of the stomach are extremely thin and the mucosa is hemorrhagic. Some reports show gangrenous areas in the mucosa and submucosa. The viscus is filled with great quantities of gas and a fluid

<sup>\*</sup>Chairman's Address, read before the Surgical Section of the State Medical Association, at Oklahoma City, May 29, 1929.

of thin consistency, greenish-gray or brown in color, which seldom has an offensive odor. Due to the size of the stomach, the loops of small intestines are literally jammed into the true and false pelvis, resulting in a great drag on the mesentery.

The ease with which this condition is recognized forms one of its outstanding characteristics. In or near the middle of the critical period, the patient first shows signs of gastric dilitation. Pain is complained of in the epigastrium and left hypochondrium, there is some hiccough and belching and an increase in temperature. At this stage the close observer will detect a distension in the left hypochondrium and succusion splash. There now appears an extremely important phenomenon, initiated at times by projectile vomiting and continued by regurgitations of mouth-full of material having the physical appearance of root-beer. Vomiting or regurgitation continues in spite of withholding everything by mouth. This is explained by the presence of secretion bodies from the duodenum passing into the stomach and stimulating the gastric glands to excessactivity. Not infrequently small amounts of bile show in the vomitus. Such findings are not suggestive of a serious condition, but are certainly a storm signal to the observing. Should treatment not be instituted, there is rapid dehydration, scanty urine, restlessness, rapid pulse, whose rate and volume may prove an excellent index to the severity of the condition, and all signs of impending disaster. These latter symptoms are due to the enormously distended viscus pushing the small bowel into the pelvis and thereby causing sufficient mesenteric pull to obstruct the movable portion of the duodenum as the superior mesenteric artery passes over it. The duodenum is actually pinched between the artery and the vertebral bodies. In other terms, death from acute gastric dilitation is really death due to high intestinal obstruction. Herein lies the reason for the greatest confusion in diagnosis, since without preliminary observation, the patient is naturally diagnosed as intestinal obstruction, if seen late.

Treatment is extremely simple—the stomach tube of Kussmaul, and posture. The mere passing of the tube is productive of considerable relief, although it is necessary at times to lavage the stomach in order to completely collapse it. If signs

of duodenal obstruction are present, the postural treatment of knee—chest position (if practical), ventral decubitus, right lateral with pelvis elevated, will relieve the pathology remarkably promptly. (3) Doolin reports of 114 cases where postural treatment was not carried out. 75 in number, or 65 per cent died; whereas, in the 30 per cent where it was instituted only seven per cent died. Surgical treatment has been done by those few surgeons who do not recognize, or do not see the train of symptoms developing from hour to hour before their eyes, or those who do not have sufficient time for observation or interpretation of the sequence of symptoms. Some patients have been subjected to repeated laparotomies—one had the stomach trocarized and a few days later a gastro-jejunostomy! How impractical such a procedure is can readily be seen when we remember it is the movable portion of the duodenum and that only which is obstructed.

The purpose and aim of this treatise would be lost if it merely emphasized these few points in diagnosis, etiology and treatment. Rather, it is a plea for more observant evaluating post-operative care. Do not assume that when the last bleeding point has been controlled, the last suture tied that your responsibility and cares are at an end; rather that is the time when the blustering mechanic retires noisily to the background and the keen, watchful surgeon accepts the responsibility and takes the center of the stage, in command.

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## SOCIAL ASPECTS OF TUBER-CULOSIS\*

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I have chosen this subject for this occasion, because it has a universal appeal and carries a heavy obligation, not only for the physician, but for the layman as well. If, in the short space of twenty minutes I can lay upon your minds and hearts the truth it embodies, I will have rendered a service which may in the course of events aid in preserving the charmed circle which hallows your own hearthstone.

\*Oration on Tuberculosis delivered at the Thirtyseventh Annual Session, Oklahoma City, May 29 1929.

Any address on tuberculosis must be an omnibus affair, carrying more than it can gracefully handle. Therefore, I ask your undivided attention, with the hope that you may read between the lines. By the word "social" we mean those factors which influence human beings, individually or collectively, for good or for bad. In the course of every case of tuberculosis, whether concealed or manifest, certain events transpire in regular sequence, culminating in an ultimate fate with the inevitability of a character in Greek tragedy. Tuberculosis once present in the human organism may become latent and remain so throughout a lifetime, or it may become immediately active, taking on the hopeless aspect of one of the acute forms of the disease, or it may continue latent until some physical or mental strain interrupts its latency and initiates an active, progressive disease, usually chronic in character with a downward course of three to five years, if untreated, or if therapeutic measures prove unsuccessful.

If the disease becomes more or less advanced with tubercle baccilli in the sputum, it is virtually impossible for the patient to live in contact with other people without danger of infection. The existing danger is in proportion to the amount of sputum, the number of the tubercle baccilli found in the sputum, the intelligence and training of the patient, the age of those in contact and the environmental conditions under which they live. When contact with open tuberculosis exists, even under the most favorable conditions, the danger is grave, especially if young children are exposed. When the conditions are unfavorable, disaster is inevitable. Speaking to my confreres in the practice of medicine, the obligation hangs heavy over our heads. The symptoms, or the articulate expression of nature in her mother tongue, are crying in our ears. The physical signs are thrust upon our senses. The tubercle bacilli are awaiting the stain. Nature has painted the picture, the image should appear on our diagnostic retina. When this image appears to us, our responsibility begins and sympathetic and intelligent action must follow. Through such action disease may be arrested, life saved, massive infection prevented, earning capacity restored and domestic equilibrium preserved.

Since a large per cent of all individuals suffering from advanced pulmonary tuberculosis can be benefitted by some form of collapse treatment, it is reasonable to

say that every case should be thoroughly studied, preferably in an institution for the treatment of tuberculosis, with a view of determining whether or not this method of treatment offers any hope of relief. This would provide the best chance for those who are suitable for collapse therapy and it would give those who are not suitable at least a short period of education in the methods of prevention and treatment, and through this educational influence they might be induced to stay on for indefinite periods of time. This isolation, while it lasts, would materially reduce the danger of both household and outdoor infection, and the education given would minimize the further danger after the patient's return home. If we add this estimated reduction in the danger of infection to that which we naturally would expect from the proper treatment of the large number suitable for collapse therapy, the sumtotal should be sufficient to materially influence the incidence of serious infection and establish a new figure in statistical columns. In thinking of this sum-total, I urge vou to consider the fact that people with advanced pulmonary tuberculosis usually expectorate ounces of sputum daily and are the most prolific bearers of the tubercle bacilli. If we assume that there are 100,000 advanced cases in the United States, with an average of two ounces of sputum daily, and if we reduce this to plain figures, we would have 200,000 ounces or 12,500 pounds of sputum daily.

In addition to the actual reduction in the danger of massive infection such a plan for education and treatment would bring about a more hopeful attitude which would replace the fatalistic viewpoint based upon the results of treatment as formerly employed and upon the pessimistic teaching so widely accepted until a few decades ago.

There is a great difference for all concerned, between fighting with the belief that death is sure and certain, and fighting with reasonable hope of restoration of health and continuation of life.

From the standpoint of the relation of disease to family economics, tuberculosis easily stands at the head of the list. In many a family of limited means, advanced chronic pulmonary tuberculosis has lifted an impenetrable wall between life and those things which sustain life. Having thus arranged the stage for tragedy, chronic tuberculosis may stand aside to view the drama. On this stage little babes in the arms of tired mothers may pass

from the somnolence of meningeal irritation to eternal sleep with no sign to mark the moment of transition; rosy cheeked, playful children may grow pale and lose the graceful lines of youth through distortion of ominous lumps in the neck, angular crooks in the back, or the telltale limp of a tuberculous hip. With broken spirit and bent bodies, after fruitless attempts to scale the wall, abdolescents and young adults take on the hectic flush and pass from the stage of life with a strange flare of courage, perhaps in anticipation of reward for a hard-fought battle.

To substantiate the fact that this is no idle flight of imagination, I now present the following slides, which have been chosen, not because they are exceptional but because they are representative of a great number of cases which might be presented if time would permit.

TREATMENT OF FRACTURES\*

WADE SISLER, M.D. TULSA

Without exception, the treatment of fractures is one of the most important subjects in surgery today. This, especially in view of the fact that the incidence of fractures is higher than ever before and that a greater variety and worse types are encountered now than formerly because of our modern industrial and mechanical age. This condition has been a great stimulus to the surgery of fractures. It has been my observation that a great number of the medical profession now consider the present day treatment of fractures as almost ideal. This is undoubtedly due to over-confidence and false security obtained from the universal availability of mechanical appliances, convenience of the numerous hospitals and the use of the Roentgen ray.

Early failure or disappointment in the closed treatment too often leads to a hasty and possibly disastrous open procedure. My purpose, as will be shown later, is not to deprecate the value of open procedures in fractures, especially complicated ones, but to call attention to the fact that the average physician and the average surgeon has not kept apace with progress in fracture treatment, and often knows less than the olden time practitioner about applied anatomy, bone physiology and the requirements for function.

In my opinion, modern conveniences have obviated the keen study that was formerly required of the condition. In fairness, though, I must mention that there are a large number of men who are everlastingly searching for improved methods concerning the treatment of fractures. This is evidenced by a glance at the literature, which never before has contained so many references of this sort. Fractures rarely kill—they only deform, cripple or incapacitate; in contrast to diseases of the respiratory, gastro-intestinal, genito-urinary or pelvic organs, and hence the comparative lack of interest in this most important subject.

On the part of the laity, X-rays have created a new standard by which results must be judged and have necessitated the physician striving for complete restoration of injured structures. The Roentgen ray is admitted into court as evidence in malpractice suits, be they genuine or blackmail. There is recognized a legal liability for failure to properly use the X-ray as an aid to diagnosis and treatment. It, unmistakably, calls for the open reduction of certain fractures.

Experience under the various industrial accident laws has given additional information concerning the disabling effects of injury and the end results of various methods of treatment, resulting in a higher standard of function being demanded by the patients, employers and insurance carriers. In many instances, unnecessary wastage of human material has been disclosed. While it is not true in every case, usually anatomical and functional results are closely related, but between the two we must judge our results by function. To repeat: we must strive more energetically in all our fracture work for anatomic perfection; it gives better function; disability is decreased; healing is quicker and the physician is safe from a medico-legal standpoint. The attempt to secure perfect reduction necessitates, in a great many instances, open operative procedures. In a general way the indications for operation are, that by the open procedure, function can be more nearly returned to normal in less time. More specific indications are to (1) sterilize, debride and repair damage in compound fractures; (2) joint fractures; (3) oblique or spiral fractures when not possible to otherwise keep extended; (4) when accompanied by nerve lesions or vascular lesions with unusual hematoma; (5) when early mobilization of nearby joint is desired.

<sup>\*</sup>Oration delivered at Thirty-seventh Annual Session, Oklahoma State Medical Association, Oklahoma City, May, 1929.

A surgeon operating on fractures should have certain qualifications in order to be reasonably certain of a successful result. Briefly, I might mention that he should have definite knowledge of the patient's physical, mental and economic condition. and detailed knowledge of the exact local bone condition which he seeks to correct. It behooves the doctor to have tried all the usual methods of closed reduction and fixation, unless the injury be one of the class to be mentioned later, that demands immediate operative interference. Unfortunately, the doctor must face the possibility of introducing infection and sooner or later learns that open operations seldom accelerate callus formation but usually delay it. Also, he should have perfect mechanical equipment, including wide variety of bone instruments, fracture table for plaster applications or adequate mechanical devices for immobilization, as well as X-ray. These positively should be complete as with any other type of treatment. Too often entirely, I have seen patients with non-union or malunion following operation, and in several of these instances the bones undoubtedly would have united under the usual conservative methods. Also, the surgeon should possess a fundamental knowledge of bone tissue, its reaction to mechanical stimuli and conditions which influence repair; also, he should be thoroughly experienced in the successful treatment of fracture by the non-operative method as well as have a wide range of knowledge in aseptic and; preferably, instrumental technic. In our own technic, we never touch bones, gauze, suture materials, etc., with our hands.

By this necessarily brief general discussion of open operations on fractures. I merely wish to emphasize the importance of correct preliminary study of all fractures and the selection of a rational plan of treatment which, once chosen, should be followed as nearly as possible. The physician should be particularly careful in making a complete diagnosis of the lesion, especially noticing whether there are motor or sensory changes in the limb. It is entirely too often that pressure paralysis occurs after treatment is instituted for the doctor to be blamed for that damage which occurs at time of injury. Incidentally, I might mention that in our practice, we never depend on the fluoroscope, even during reduction. The difficulties, delays and dangers surrounding the use of same, usually offset the advantages. We reduce the

fracture in the best possible manner by manipulation; apply fixation and then take X-ray plates. Also, the fluoroscope is entirely unreliable for diagnosis of osseous lesions, and recently we have seen two cases in which joint fractures were missed.

In a brief way I will discuss a few selected fractures and following these will show some slides on hip fractures and treatment. I have found that these few particular types consistently have a lower percentage of good results and cause the doctors more grief and trouble than other kinds. Aside from ordinary malunited fractures of the long bones, they are the basis for the majority of malpractice suits.

Fractures at the base of the radius, such as "Colles", "Ford" fracture, etc., are complicated by the impaction with consequent shortening and rotation of the distal fragment as well as the characteristic silver fork deformity. A correct diagnosis is best made from comparative X-rays of both wrists taken in the A.P. and lateral. In this way, the actual amount of shortening is easily measured by comparing the two sides. Personally, I think it is a grave mistake to leave any degree of impaction-no matter how small. Another rule that we strictly observe is to always insist on the patient taking an anaesthetic, no matter how light the manipulation will probably be. This allows us time and opportunity for exact diagnosis and perfect reduction. Very often an associated forward displacement of one of the carpal bones is present, and if un-recognized and not removed early, will result in severe and persistent pain and stiffness in wrist and fingers. For those extreme cases of radial impaction and shortening, in recent or just moderately old fractures, we have been sucessfully employing a free graft of cortical bone, removed from the shaft of the radius and placed between the loosened ends of the impacted or shattered fragments. This can be used in one or two thicknesses, according to the amount of correction necessary.

During the last twelve months, we have operated on fifteen patients for fracture of the head or neck of the radius. On each occasion, complete excision of the head was done and in no instance has there been any noticeable symptoms of weakness or instability in the elbow or forearm. This, I ascribe to the fact that weight and stress at the wrist is effectively transferred to the ulna through the medium of the inter-

osseous membrane. Since practically all of these cases, when untreated, develop chronic pain in elbow, markedly limited rotation of forearm as well as partial fixation of the elbow, we do not temporize with them. A good point to remember is that no matter how small the fracture, the elbow joint fills with blood, and callus formation on the radius interferes with its circular movement in the dense annular ligament. Active and passive movement can be begun as early as 4 to 7 days after operation.

Fractures of the anatomical neck or head of the humerus have always offered a distinct problem in after-treatment. Unless there is an associated subluxation or undue rotation of the head, there is usually no difficulty in apposing the fragments under anaesthetic. The great majority of these cases are treated by some type of bandage holding arm to side of body or at the best, only elevating it slightly on an aeroplane splint. As a result, a very rapid adduction contracture occurs, the deltoid, trapezius and other shoulder mucles rapidly lose strength and the patient almost powerless to elevate the arm when the fixation is removed. The handicap of contracture, weakness and weight of the arm are enough that disability is permanent. This is true, particularly of older people; is also true for them in severe sprains, contusions, crushes, etc., which initiate traumatic arthritis and neuritis with the same painful disability. The prevention consists in elevation to a right angle on abduction splint of all fractures of the anatomical neck, head, sprains, contusions, etc., followed by early heat, massage and movement.

Although it has been necessary to do open work on compound, mal-united fractures of the shaft of the femur and of leg fractures, yet in no instance has the shortening, etc., been enough to demand open work on a fresh fracture. Neither has any type of splint been used for uncomplicated fractures of the shaft of the femur, or of the leg, but immediate reduction and application of double hip spicas with moderate flexion at the hip and knee were routine. This allows immediate moving and turning of the patient and if general condition is O.K., they can go home within a week or two.

In applying plaster for a leg fracture, four things should be noted in addition to amount of flexion desired at knee; namely: end to end apposition of bones; there

should be no angulation of bones; the big toe should be in line with patella, and the foot should be at a right angle with leg to prevent shortening of the tendon achilles.

This brief paper was written solely for the purpose of emphasizing a few very important types of fractures and to stress the need of more careful diagnosis and treatment of this most common condition. —From Hospital for Bone and Joint Diseases, Eighth and Elgin, Tulsa.

# ETIOLOGY AND PREVENTION OF GOITRE\*

R. M. HOWARD, M.D. OKLAHOMA CITY

The correct treatment of a diseased condition once it has developed is of the utmost importance; nothing should be left undone that will restore the victim to health. Unfortunately most diseases though alleviated produce damage to the vital organs and life's expectancy is shortened. How much better it would be if we could prevent disease, prevent the permanent pathological changes that must accompany and follow it, as well as save the patient and community the economic loss that must occur.

Through the present knowledge of etiology and prevention in disease great strides are being made, but much more must be done by the application of things we know in a practical way. They must be made to reach the people by the men who come most intimately in contact with them. Are we as physicians and health officers doing our best with some of these problems or are we through indifference and perhaps negligence or lack of what we should know failing to do the best we can?

When we think of preventable disease our minds turn to such as malaria, typhoid fever, yellow fever, and tetanus; conditions that are likely to produce profound impressions because of their immediate mortality.

How prone are we to forget the chronic conditions that may affect not only the individual, but future generations. Typical of this class of cases are the diseases of the thyroid gland. Goitre in its various manifestations is much more prevalent than generally believed. While its home is said to be in the Alps and the Himalaya Mountains of Europe and Asia, it is reaching

<sup>\*</sup>Oration delivered at Thirty-seventh Annual Session, Oklahoma State Medical Association, Oklahoma City, May, 1929.

alarming proportions in the United States, and locally as our country is growing older our water supply changing, and our food supply becoming refined, goitre is rapidly becoming more prevalent. Disabuse your mind of the idea that we are not in the goitre belt. A little time and failure to use preventive measures will settle the question. In the limited time given me I can only take up three points in the goitre problem, and consider them very briefly.

1. Why does goitre develop?

2. How does it develop?

3. What are some of the results?

Of the many theories as to the cause of goitre, the one most widely accepted and the one that through experimental work on animals has the most to support it, is, that of iodine deficiency. During certain periods of life the demand on the thyroid gland is very great. This particularly occurs during the developmental period. The work of Marine and Kendall, and many others, among the school children of the United States shows clearly that iodine deficiency at this period of life, and the changes in the thyroid incident thereto are probably responsible for goitre in later life.

Why should iodine deficiency at this time cause goitre? (1) Because iodine in certain quantities is necessary to enable the thyroid gland to produce thyroxin, its essential element. (2) Thyroxin intimately controls the tissue growth, the development of the long bones, the sexual organs and the body metabolism. (3) When the extra demand comes for thyroxin, and sufficient iodine is not present to enable the gland to produce it, the thyroid gland as a whole undergoes changes in its effort to meet the demand. This situation is necessary for the factors to be present to initiate the trouble.

Iodine must be present in sufficient quantities in the food and drinking water, or, must be furnished to the individual to make up for the deficiency during the period of extra demand if the thyroid gland is to remain normal.

Goitre develops when the iodine content of the thyroid gland drops below (.1%) one tenth of one percent per gram of dried weight of the gland.

How does this develop? When the percentage drops below normal active hypertrophy and hyperplasia is initiated in the cells of the gland, the blood supply is in-

creased, and there is a decrease of stainable colloid. The epithelium changes from low cuboidal cells to cuboidal, to collumnar. This series of changes is proved to be consistent in all thyroids from fish to man. When the epithelial proliferation has reached its maximum, the colloid has decreased to a small amount of granular albuminant material, and the iodine content has fallen to an inestimable trace. This represents the progressive stage.

Involutional or restitutional changes may begin at any stage of active hypertrophy or hyperplasia. These changes occur spontaneously or may be induced by iodine. The end stage in either event is colloid goitre.

Colloid goitre is the nearest condition to normal physiologically, chemically, or anatomically that a thyroid that has once been hyperplastic can again assume. Involution can be arrested at any stage and hyperplasia begin again, all stages of involution from the marked hyperplasia back to the colloid gland exist, just as all stages of hyperplasia exist and the morphological appearance of a given gland merely represents the stage of this cycle at the time of examination. The anatomical changes are the reverse of those seen during hypertrophy and hyperplasia. The gland becomes firmer, the blood supply becomes diminished, the colloid becomes dense and viscid. Paralleling the accumulation of colloid is a rise in iodine store, the cells return from collumnar to cuboidal to flat cuboidal if involution is complete.

While involution or recovery is the usual mode of termination of compensatory hyperplasia it occasionally happens that the maximum degree of hyperplasia reached fails to bring about functional compensation, and sooner or later a stage of thyroid exhaustion supervenes as is seen in goiterous cretins, myxedema and in the last stages of exophthalmic goitre going over to myxedema.

Coincident with these changes and for the same reason, i.e., compensatory efforts of the gland, nodules form which are the beginning of the so-called adenomas. These begin during the late stage of compensatory hyperplasia because of different rates of growth of the cells dependent on the blood supply. These adenomas being differentiated thyroid tissue are subject to the same changes that we have described as being characteristic of the simple type

of goitre, with this exception, that after reaching a certain age they tend to take on hypertrophy and hyperplasia which do not undergo involution, resulting in a state of hyperthyroidism. Until recently we have followed Plumber and Goetz in their belief that this is a true hyperthyroidism different from the dysthyroidism of exophthalmic goitre. Marine and Graham have put forth considerable evidence that the two differ only in degree, and are essentially the same process. We are inclined to believe that their difference depends only upon the acuteness of the process. One being chronic hyperthyroidism while the other is acute hyperthyroidism.

David Marine must be given credit for stating clearly our present ideas as to the development of endemic goitre. (1) That all thyroid enlargements begin as active work hypertrophy and hyperplasia. (2) Involutional or restitutional changes occur in most cases spontaneously, or are caused by the administration of iodine, colloid goitre resulting. (3) Exhaustion atrophy occurs in a few cases, the follicles disappearing, the gland becoming sclerotic, myxedema or cretinism developing. (4) That nodular or adenomatous goitre occurs during the late stages of compensatory hypertrophy because of different rates of growth, and that these nodules tend to repeat the same morphological cycle as non-adenomatous tissue. (5) That thyroid hyperplasia, (goitre) is a compensatory process dependent upon a relative. or absolute deficiency of iodine.

This being true, and it is founded upon exhaustive experimental work, and the best that we know today is true, the prevention of large numbers of cases of goitre depends on a very simple thing, the administration of iodine where it is deficient. Most goitres which appear during later life make their appearance during the adolescent period. They occur in individuals who at that time of life have an iodine deficiency.

There is another period in life which is of almost equal importance. I refer to the compensatory hypertrophy and hyperplasia which develop in the pregnant mother. Iodine, or thyroid extract in those with goitre, given to those individuals is of extreme importance. Goitre in the offspring may not only be averted, but the terrible tragedy of cretinism, deaf mutism idiocy may be prevented.

Small quantities of iodine, much smaller than is usually believed is all that is necessary to prevent the development of these changes in the thyroid gland, many of which are only amenable to surgery, some of which we are helpless to relieve.

It is not necessary to look very far to prove that maternal influence is important in the prevention of goitre. The children may be neglected but not the valuable live stock. In the northwest portion of the United States large numbers of animals suffer with so-called "Bigneck", and almost 70% die. The owners have found that if the mother is given iodine while she is carrying the off-spring no such thing occurs. Kalkus, working in the state of Washington where congenital goitre is prevalent among animals was able to produce goiterous or normal kids from the same ewes by giving, or, withholding iodine during pregnancy. Hart and Steinbach's experiments were equally conclusive when carried out in pigs.

Simon Levin, in Michigan, in an unselected group found 1146 goitres in 1783 persons. He investigated the histories of these cases for the localization of the disease in families, and found that in 22.2% of the patients the fathers had goitre, in 85.4% the mothers were afflicted and in 67.6% of the cases the children shared the disease.

The results of preventive treatment of goitre is showing remarkable results where it is being carried out among school children. A marked decrease in the incidence of the disease is being noted. This is being reported from many workers in the United States and abroad. Prof. Wagner-Jouregg recently reported a decrease in selected cases in Vienna of 61%. In Berne, of 80%. D. G. Mieggio reported an equally marked decrease in Italy.

What are the results then of our failure to prevent goitre?.

1. Colloid goitre.

2. Adenomatous goitre without hyperthyroidism.

3. Adenomatous goitre with hyperthyrodism.

4. Exophthalmic goitre (probably).

5. Malignant goitres.

6. Cretinism, deaf-mutism and idiocy.

Most of these conditions, if not all, are made possible at some time by compensatory changes in the thyroid gland incident to an iodine deficiency. Colloid goitre resulting from compensatory hypertrophy and hyperplasia.

Adenomatous goitre having its inception in the last stages of the same process, and after a period of years becoming adenoma with hyperthyroidism in a great percentage of these cases.

Exophthalmic goitre probably occuring most often in a previously damaged gland.

Malignant goitre found only in adenomatous goitre.

Cretinism, deaf-mutism, and idiocy resulting from incomplete function of the thyroid gland in the pregnant mother.

### COUNCIL PASSED

Notification is being sent to the medical profession that the well known and deservedly popular Haley's M-O, Magnesia Oil has been accepted for N.N.R. of the American Medical Association, Henceforth the product will be known as Magnesia-Mineral Oil (25) Haley. It was certainly a happy thought to combine Liquid Petrolatum and Milk of Magnesia in the form of a permanent, uniform, unflavored emulsion. The taste is not at all unpleasant and the absence of any distinct flavor prevents the habitual user from growing tired of it.

The value of mineral oil as a lubricant and emollient for the treatment of certain forms of obstipation has been well established. In many cases, however, there is added to the need for lubrication the indication for the use of a mild laxative and ant-acid for which purpose years of clinical use have demonstrated Milk of Magnesia to be ideal.

to be ideal.

Practically, there exists in many cases of intestinal stasis and constipation a hyperacid condition which calls for the use of an antacid.

Magnesia-Mineral Oil (25) Haley has therefore a therapeutic field considerably broader and more diversified than is the case with either one of its ingredients considered singly.

The makers of this product, were prompt to realize this but were also aware that skepticism or doubt is apt to be aroused when the number of

indications for the product is large.

As evidence of good faith and entirely in the interests of the medical profession, numerous questionnaires have been sent out from time to time, giving the physicians an opportunity to indicate exactly under what conditions his use of Magnesia-Mineral Oil (25) Haley proved most satisfactory. Response to these questionnaires has been prompt and numerous.

Tabulations have been carefully made of the replies received from physicians and only those indications mentioned in the literature which proved to have been common to a large number of doctors. In this way it is believed, undue claims have been avoided and the doctors have been given reliable information based upon actual clinical

use.

The same method has been employed in the case of the dental profession, because dentists have been prompt to recognize the value of Magnesia-Mineral Oil (25) Haley as an antacid mouth wash. The advertising of this product has been kept within strictly ethical limits. The mails have

been used regularly and, judging from the comments received from thousands of physicians, the attempt to call attention to Magnesia-Mineral Oil (25) Haley by the use of something different and original in the form of printed matter has been well received. The little booklet, "A Gift from the Gods" met with a very flattering reception and in the near future another feature will be sent to every physician in this country which will undoubtedly be not only welcome but given a permanent place in the doctor's waiting room, private office or house.

Another policy of the makers of this product is to be generous in the matter of samples for clinical trial and requests for same are always given

prompt attention.

-The Haley M-O Co., Inc., Geneva, N. Y.

#### PARKE-DAVIS SCIENTIST RETIRES

Following a noteworthy service of 34 years with the house of Parke-Davis & Co., Dr. E. M. Houghton retired from active duty on May 1, but will continue as a member of the company's executive staff, with the title of Consulting Director of the Research and Biological Laboratories.

Dr. Houghton came with Parke, Davis & Company on February 1, 1895, to take charge of research work in pharmacology. He was associated with Dr. Charles McClintock as Junior Director of the company's Biological and Research Laboratories from that time until 1910, when Dr. McClintock retired and Dr. Houghton

became Director.

sity of Michigan with the degree of Pharmaceu-Dr. Houghton was graduated from the Univertical Chemist in 1893, and received the degree of Doctor of Medicine from the same institution in 1895. He was assistant in Pharmacology at the University from 1894 to 1895, immediately prior to joining Parke-Davis & Co.; Lecturer in Pharmacology at the Detroit College of Medicine and Surgery from 1897 to 1902: and also a special lecturer at the University of Michigan for several years after that. He has been for several years chairman of the Biological Section of the American Drug Manufacturs' Association. In 1908, he was appointed by the United States Department of State as delegate to the International Congress of Applied Chemistry held in London.

In scientific circles Dr. Houghton is widely known as a pioneer in the field of biological standardization, having started this work at the University of Michigan in 1894, and continuing at the Park-Davis Biological Research Laboratories, which was the first institution of its kind in

America.

His contributions to the literature on the subject have been extensive and valuable, and are recognized as authoritative by scientists both in this country and abroad.

To Dr. Houghton, too, properly belongs the credit for establishing the principles of physiologic standardization. He foresaw the importance and possibilities of this work years before its significance was generally recognized by other pharmacologists either in this country or abroad.

He was a member of the Wayne County Medical Society, the Michigan State Medical Association, the American Medical Association, the American Pharmaceutical Association, the American Physiological Association, the American Society of Bacteriologists, the American Society of Immunologists, and the National Tuberculosis Association.



C. T. HENDERSHOT, M.D.

TULSA
PRESIDENT 1929-1930
OKLAHOMA STATE MEDICAL ASSOCIATION

## THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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#### EDITORIAL

#### FOREWORD

The beginning of a new administration year of the Cklahoma State Medical Association finds us in good shape. The past year under the guidance of Dr. Ellis Lamb was one of the best in the history of the association and the comment was heard on many sides that the thirty-seventh annual meeting held in Oklahoma City recently was one of the best from a scientific standpoint, held in years.

The local committee on arrangements is to be congratulated upon splendid clinics offered and the scientific sessions were of more than passing interest. The utmost harmony prevailed at the business sessions and all seemed ready and willing to co-operate to make the meeting a success.

In assuming the presidency of 1929-1930, I do so with the expressed confidence of the council and delegates for a constructive and, we hope, progressive year in the annals of our association. In extending greetings to the entire membership, I desire especially to thank those whose untiring efforts in my behalf have been conducive to elevating me to the exalted position as the head of my profession in the state for 1929-1930. We have no radical reforms to advocate and no cherished dreams to realize except such as has to do with the good of the association. We realize the futility of a small group of officers trying to make a success of an organization so wide in its scope and shall depend upon each individual member to do his share.

#### THE COUNCIL

Some new councilor districts have been created and some new councilors selected. These men are the trustes of the association and the censors in their various localities. So much depends upon them. Their deliberations spell success or failure, and knowing each member of the council personally, as I do, I have no fear as to their fitness to undertake so much for the welfare of their constituents.

#### THE COMMITTEES

Some marked changes have been made in the personnel of the various committees. Standing committees, as provided by the constitution, have been selected on account of the fitness of the men and their interest as manifested along various lines represented.

#### SPECIAL COMMITTEES

The members of the special committees were selected only after a conferenc with some of the other officers and each man is a leader in his community in his respective line. Much work can be accomplished by these men through correspondence and where possible a meeting at least once a year to review the work assigned them and prepare their annual reports which, by the way, must be in the hands of the secretary sixty days previous to the annual meeting.

#### COUNTY SECRETARIES

So much depends upon the local secretary. Get a copy of the constitution. Study it. Strive to build up your unit of the organization, prepare interesting and in-

structive programs, keep a strict record of your members, correspond with the head office for advice and council and you will be surprised at the improvement in your society. And last, but not least, I wish to enjoin upon the individual member his duty to his fellows and his local society. Your attendance at its regular session does much to stimulate interest. Go hear the papers. Read one yourself. Occasionally present clinical cases and you will find that your attendance will be an inspiration to others. You will profit to that measure to which you give service and no one ever hears a paper that is not of some profit to them-you learn something to use or avoid. Our earnest endeavor throughout the coming months shall be to co-operate in every way possible to make this a worth while year for our association and in doing so we earnestly hope for the good wishes of all concerned.

Fraternally,
C. T. HENDERSHOT,
President.

#### THE OKLAHOMA CITY SESSION

The thirty-seventh Annual Session will go down in our history as the most successful medical meeting we have ever held. The attendance was one of the largest (more than 600) the session has ever brought together.

The clinics brought a larger attendance and were more interesting than ever previously given. All the meetings were crowded to capacity. Probably twentyfive per cent of those seeking to attend the general session on the first night could not be accommodated, the same was also true of the sections; these were crowded to an unusual degree. The eye, ear, nose and throat section reported the largest attendance known while the assembly room at the University Hospital was unable to accomodate those desiring to attend the medical section. The exhibit space was crowded to capacity; however this was known in advance, but was the only available space for that purpose.

The second meeting in which orations on surgery, pediatrics, tuberculosis and goiter were rendered, likewise could not accommodate those desiring to be present. All the special dinners had unusually full attendance.

At the general session Rev. Samuel Gibson, Oklahoma City, delivered the invo-

cation; Dr. LeRoy Long, Dean, Oklahoma University Medical School, delivered the address of welcome, which was responded to by Dr. W. T. Salmon of Duncan. After the address of the president, Dr. C. T. Hendershot, Tulsa, Dr. Irwin Abell, Louisville, Ky., delivered an address, which commanded close attention from all those fortunate enough to hear him. The President's reception and dance on the second evening brought out a crowded house.

The devotee to golf was well satisfied with the opportunities he had to enjoy his favorite sport.

Oklahoma City has always been a favorite meeting place and this session has detracted nothing from its enviable reputation in that respect. Physicians attending the meeting, who had never before seen the new school building came away with a great feeling of pride over the growth and equipment of the medical department of our University, and those of us who now belong to what may be termed "older school" feel regret we could not in our day have access to the modern aids of the medical student of today.

A large part of the success of the meeting was due to the untiring efforts of Dr. Arthur W. White, the general chairman. Dr. White found great difficulty in coordinating the many diverse interests to be cared for but succeeded in doing so with as little friction as seems humanly possible.

## THE CLEVELAND DISASTER

The medical profession and the public of the United States were inexpressibly shocked at the recent disaster befalling the great Cleveland Clinic, where more than 125 persons lost their lives, due to what seems yet to be unexplainable causes, so far as the public can understand. The first reports of the disaster indicate that the explosion occurring in a store room, which housed X-ray films, produced poisonous gases which caused instant death to many, slow and deferred death to many others. The deaths in many respects are said to have been similar to those produced by war gases. The victims came from all walks of life, including some of America's well known medical men, members of the staff of the clinic, nurses, orderlies and patients.

The exact origin of the explosion, fire, or production of these gases is not yet known and may not be for some time, if ever. Whether ethylene gas may have ori-

ginated the trouble has not been determined. It is said plumbing repairs were being made to a leaking pipe when the explosion occurred.

This disaster is the greatest and most tragic ever occurring in any modern hospital, for that matter it is probably the greatest which has ever occurred in any hospital. The only grain of comfort out of the situation is the sudden bringing home to hospitals throughout the country, the realization that a similar disaster may occur at any time. The tragic incident therefore was immediately followed by inquiry into the location of and safeguarding of stored films throughout the country. The many dangers of ethylene gas are already well known (1) to the profession and every effort has been made to safeguard its use. But despite this, on occasions accidents do occur. The fire hazards of X-ray films (2) has also been known, but apparently not fully appreciated, but attention has been called to their dangers and even rules have been formulated for their proper storage and care (3).

Thorough study of each dangerous situation and feverish efforts to eradicate them are stimulating the activities of hospital managements throughout the country.

- (1) Controlling Fire and Explosiion Hazards of Anesthetics. Charles Wardell, Jr., Modern Hospital, February, 1929.
- (2) Minimizing Fire Hazards of X-ray Films. R. D. Hobbs. Modern Hospital, November, 1928.
- (3) New England Medical Journal, p. 1169, May 30, 1929.

#### REGISTRY OF CLINICAL LABORA-TORY TECHNICIANS

The practice of medicine is utilizing more and more the services of trained lay help. This is especially true in the case of the clinical laboratory. Since many of the scientific diagnostic procedures which must be intrusted to the hands of technicians require not only careful technique but also sound judgment based on a background of proper scientific training, it seems quite essential that more attention be given to the education and training of such laboratory workers. Along with the standardization of hospitals and the urgent call for qualified laboratory assistants there has arisen a demand for proper

standardization of the preliminary educational and technical training of those enrolled in this new profession.

Those engaged in this useful calling are likewise desirous of raising their status. Since the physicians who are practicing the speciality of clinical pathology are most vitally interested in this question, the American Society of Clinical Pathologists has taken upon itself the task of organizing a registry of technicians with rules under which those qualified by education, technical instruction and moral character will receive a certificate. The headquarters of this registry are located in the Metropolitan Building, Denver, Colorado. Any information desired in regard to the registration of technicians may be obtained by writing to the Registry of Technicians of the American Society of Clinical Pathologists at the above address or to the state representative, Dr. Ralph E. Myers, 1122 East 13th St., Oklahoma City, Oklahoma.

Another very desirable feature of the Registry is the facilities it offers in finding suitable placement for registrants and in aiding physicians to find desirable applicants.

#### ——o—— WARNING

Captain Henry H. Howard, alias Capt. Henry Boyd, etc., about 6 feet and 1 inch tall, weight 210 pounds, age 60, neat appearance. Calls on one doctor in town. Represents himself to be a southern gentleman, that his son had moved to Texas or Kansas, was very prosperous farmer, became ill with pneumonia. He takes two specialists and goes to his son, son dies; negro hired man was in debt to him. Neighbor takes negro and refuses to pay the widow the negro's debt. He goes to talk it over with neighbor, is forced to kill negro and sometimes the neighbor. Is trying to get back home. Has plenty of money at home, but cannot wire or draw check, has four or five hundred dollars worth of checks signed by different parties; indorses these checks and turns them over to victim, and asks from forty to one hundred dollars and instructs them to wait a day or two then cash all checks and take out his pay and mail balance back to his daughter-in-law. Please have arrested and wire sheriff at Waurika, Oklahoma, col-

P. S.—This party is a very good actor, in relating above story he usually cries, shedding tears when he thinks necessary.

#### Editorial Notes -- Personal and General

DR. J. I. HOLLINGSWORTH, Waurika, attended the International Rotary Convention at Dallas in May.

DRS. N. R. HOLCOMBE, C. E. WHITE, and E. H. COACHMAN, Muskogee, visited the St. Louis clinics in June.

DR. J. HUTCHINGS WHITE, Muskogee, after attending the Annual Session, motored to Dallas for the Rotary Convention.

DR. ROBERT L. MITCHELL, Muskogee, will spend a month attending the A. M. A. in Portland and visiting Pacific Coast points.

DR. and MRS. LeMASTER, Tulsa, sailed June 6th, for a four months' stay abroad. Dr. LeMaster will spend three months studying in Vienna.

STEPHENS COUNTY MEDICAL SOCIETY were the guests of Drs. A. M. McMahan and D. Long, at the regular May meeting held at Duncan. After a chicken dinner Dr. McMahan reported a case of "Sympathetic Opthalmia" and Dr. W. T. Salmon gave a lecture on "Ludwig's Angina."

DRS. H. B. FUSTON, Bokchito, and R. E. SAWYER, Durant, were painfully injured and narrowly escaped death when their car was hooked by a passing motorist and dragged more than 600 feet before it was overturned. The accident spoiled the meeting for the doctors, Dr. Sawyer having to remain in the hospital for sometime.

TULSA physicians are complaining that "Mr. Peters" representing "The Oscar Schultz Company", Cleveland, Ohio, has not treated them right. "Mr. Peters" is a plausible young man, weighing 150 or 160 pounds, has light hair and a small mustache. He was unusually interesting to some of our Tulsa friends, when he offered them extracts which if treated properly would make good liquor. "Mr. Peters" got their checks, cashed them and the doctors are still waiting for their "extracts."

THE FIRST INTERNATIONAL CONGRESS on mental hygiene sponsored by Mental Hygiene and related organizations throughout the world, is to be held May 5-10, 1930, at Washington, D.C. As this congress is the first world gathering of leaders and workers in so diversified and significant a movement as the modern mental hygiene movement, its organizers regard it as of unusual importance. They invite the attendance and participation of all who are interested in any phase of mental hygiene.

The American Psychiatric Association and the American Association for the Study of the Feebleminded are planning to hold their annual meetings in conjunction with the International Crongress.

BRANIFF AIRLINES, Inc., of Oklahoma City, operating an air transport company through Oklahoma, North Texas, Kansas and Missouri, announces the inauguration of an aerial ambu-

lance service, the first of its kind, as a part of commercial airline operation. According to officials of the company, the aerial ambulance will be of special value to doctors living in communities remote from hospital facilities, and for emergencies when speedy, dustless and quiet transportation is essential to the patient. The aerial ambulance will fly at an average speed of well over 100 miles an hour, and is fully equipped with rolling cot, linen and emergency materials. Ample room is also providid for a doctor and attendent. Arrangements can be made for the aerial ambulance by phoning 3-8700, Oklahoma City, upon which the plane will be sent immediately. Rates are 40 cents an air mile.

#### DOCTOR SAMUEL THOMAS CAMPBELL

Dr. Samuel T. Campbell, formerly of Anadarko, died at the Veteran's Hospital, Muskogee, April 27th. Born in Benton County, Missouri, April 29, 1874, he received his preliminary education in the public schools of Missouri. Graduated from the Kansas City Medical College in 1898. Dr. Campbell began his practice at Crescent City, Oklahoma, later moving to Carnegie and then to Anadarko. He was married to Miss Stella May Rexroad, May, 1899, two children surviving this union.

Dr. Campbell entered the World War in 1917 and saw much overseas service in France of the severest kind, being attached to the front line troops. In the Meuse-Argonne offensive he was under heavy artillery fire for several days, only to move from that location where five more were spent. under similar conditions.

He never returned to private practice, leaving the army in 1921 he was transferred to the Indian Medical Service. He became ill six months ago and gradually sank until his death.

Funeral services were under the auspices of the Methodist Church and the American Legion Post at Anadarko. He is survived by his wife, two children, his brother, Dr. Geo. C. Campbell, Anadarko and his sister, Mrs. Maud Moran.

#### RESOLUTION FOR DR. CHAS. P. LINN

WHEREAS, the Great Ruler of the universe has in his infinite wisdom removed from among us one of our esteemed members, Charles Pickens Linn; and whereas, the long and intimate relation held with him not only in this local society but in our state organization of which he was one of its original members; and whereas, the love and admiration the pioneers and orginal inhabitants of this state still had for him, he having been physician for the Seminole Nation long before statehood, as evidenced by their frequent social visits to his office, therefore,

RESOLVED, that the removal of such a life from among our midst leaves a vacancy and a shadow that will be realized not only by the society but by the community and the public, and be it further,

RESOLVED, that we sympathize deeply with the bereaved relatives of the deceased and hope that so great a loss to us all may be revealed for good by Him who doeth all things well and be it further.

RESOLVED, that a copy of these resolutions be spread upon the minutes of this organization, a copy printed in our state journal, and a copy forwarded to the bereaved family.

> F. L. UNDERWOOD A. W. PIGFORD V. K. ALLEN

Tulsa County Medical Society.

#### GENERAL MEETING

Address of Welcome to State Medical Association By

LEROY LONG, M.D. DEAN University of Oklahoma, School of Medicine, May 28, 1929.

Mr. President, Distinguished Guests, Fellows of Oklahoma State Medical Association, Ladies and Gentlemen:

Looking forward to the honor of entertaining the State Association, our County Association mobilized its members and put them to work. In the mobilization scheme carried out by the local committee, I have been assigned the pleasing duty of extend-

ing to you a hearty welcome.

It is a common, quite uniform, and, I should say, appropriate custom for visiting organizations to be welcomed by like organizations acting as hosts. It is an appropriate custom because, if for no other reason, it is a polite gesture and in keeping with the social amenities. In our case it would seem to be particularly appropriate because our County Association is a daughter of the State Association. It is the daughter then—and I trust a daughter that is passing fair—who comes with open arms to welcome the mother to Oklahoma City.

Not only do I welcome you in the name of the County Association, but I also welcome you in the name of the citizens of this city. There are about two hundred thousand of them—there will be two hundred thousand by 1930—and I am clothed with authority to speak for them. I come, too, as a representative of the School of Medicine which is very eager to have an active part in extending welcome to you. We feel that the school is honored by having you hold your meetings in the School of Medicine Building. We extend to you

welcome now, and we urge you to visit us frequently.

In speaking to you this evening I shall bear in mind that I, like you, have the honor of being a Fellow of Oklahoma State Medical Association. That puts us on common ground and makes it possible for me to speak to you as one brother speaking to other brothers of the same family.

The question of the relation of the profession to the people is always an interesting question—it is interesting and important—so important that it merits our frequent careful consideration.

After an observation covering a number of years, I am firmly convinced that the average individual believes in the medical profession. As a rule, the confidence shown by the laymen in the medical man is hardly less than marvelous. So great is the confidence of the average person that he seldom seeks advice or assistance of irregulars and charlatans until after he has gone to the physician in vain. Almost without exception we have the first chance. It is only after we fail that we are forsaken.

If what I say is true, it is not difficult for us to see what should be done to preserve, perpetuate and make stronger the bond of union between the medical profession and the people—the profession must be prepared to render the service that the people have a right to expect. The paramount function of this Association is to help the members to be able to render such service.

And there is another way to keep the confidence of the people, and that is by preserving the integrity and regularity of our profession. If we consult with the irregulars; if we actually or tacitly approve of our patients going to them for any kind of service; if we permit them to work in our hospitals, we should not be surprised if our patients go to them without consulting us.

It has been said—and said quite often of late—that the medical profession is drifting into commercialism. If by that it is meant that the chief aim of the medical man is to accumulate money, regardless of his duty to his patients, and particularly regardless of his duty to the poor who can not pay, then the charge ought to be met. But it can not be met by unsupported statements or empty assertions. In only one way can the charge be successfully refuted, and that is by demonstrating through our daily work that we are professional men whose first and chief concern is the earnest and honest solution of scientific problems for the good of those who come to us for assistance.

Would that I were able to stand here and proclaim that the charge is wholly untrue. But, Alas! I can not do that. As it affects the overwhelming majority, I have no doubt that the charge is entirely groundless, because the very character of the service rendered by the great mass of the profession definitely refutes it. But at the same time it must be remembered that the profession is composed of human beings with the frailties of human beings, and sometimes these frailities lead to questionable and even vicious unprofessional practices. Some are too frail to stand.

When the Master was on earth he chose twelve men to go about with him and help him while he taught the people. Twelve men chosen by Jesus of Nazereth, and yet in one of them human greed was so pronounced that he betrayed the Son of God for a few pieces of silver.

Medical schools and licensing boards may use the greatest care and still some are chosen who, dominated by their frailities and viciousness, wander in dark and devious ways.

But, my confreres, regardless of the cause, we should, through both individual and organized effort, do all that we can to stamp out the spirit of commercialism when it is recognized. Its existance is not only a reflection on the medical profession but too often a menace to the safety of the people who trust the profession. It is a menace because the man who practices it makes an honest investigation of the condition of a patient entirely subservient to his desire for money.

When a patient goes to a physician for advice, he goes to him because he has confidence in both his integrity and his ability. He goes with fear, perhaps, but he goes at the same time with hope. He goes prepared in his mind to follow the advice given him even though it may mean much expense, long confinement or a dangerous surgical operation. In order to regain his health, he is willing, if the doctor advises it, to go down into the valley of the shadows. Oh, my brothers in the profession, let us visualize the tremendous importance to such a patient of being directed by a man who not only has ability but who keeps the law of his profession.

On numerous occasions, I have spoken of the traditions and the principles of our profession—traditions and principles upon which the work of the profession is founded. I hold them up before you now, because in them is strength—strength engendered through centuries of earnest travail. I hold them up because there is beauty there -beauty begotten of unselfish work and altruistic endeavor. Yes, and there are gentleness and faith and hope and charity that, like a protecting mantle, shields the sick and the helpless and the unfortunate. In the traditions of our profession there is bravery, too—bravery that causes a man, when need be, to lay down his life for immutable truth and eternal principle.

But they say that traditions are empty. Turn over the pages of history and you will find the answer written there. From Leonidas and the immortal Three Hundred at Thermopylae down to Verdun where serried ranks marched in regular formation day after day straight into the mouth of hell, men have done great deeds and made great sacrifices because of tradition and devotion to principle.

Then let us look back to the traditions of our profession—even back to the ancient days when the great oath was formulated by Hippocrates— the oath that for twenty-four centuries has been the law of our profession. And then let us stop and ask ourselves if we have kept the law.

And as we look back let us try to see again some of those who gave us traditions and ideals. It is an immortal galaxy now behind the veil that separates life from death—Andreas Vesalius is there, and Ambroise Pare; and John Hunter and Harvey and Jenner. There in the picture are the great Pasteur and Koch; Claude Bernard and Lister. And in our own land William Beaumont and Ephriam McDowell; Crawford W. Long and Sims and Walter Reed and Murphy—there they stand—"Like solitary towers in the city of God," because they have labored for humanity and have kept the law.

In Oklahoma State Medical Association there are hidden sources of energy and intelligence; of wisdom and power. I pray that they may be developed for the good of the profession and the people of the State. Believing in you, and with this prayer, I extend to you a most cordial welcome.

MINUTES THIRTY-SEVENTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, OKLAHOMA CITY, MAY 27, 28, 29, 1929:

### HOUSE OF DELEGATES Monday, May 27, 1929, 8:00 P. M. Oklahoma City

Meeting called to order by the President, Dr. Ellis Lamb, Clinton.

Roll call of delegates by Dr. W. A. Howard, Chelsea, Chairman Credentials Committee.

Report of Credentials Committee accepted.

Moved and seconded that the Minutes of the 1928 meeting as published in the June and July, 1928, Journals, be approved.

Dr. C. A. Thompson, Secretary-Treasurer-Editor: Gentlemen: I have two things to especially call your attention to: the adoption of the new Constitution and By-Laws, which carries a clause that wherever possible Committee reports and other similar reports shall be published in the issue of the Journal preceding the annual session. For that reason the report of the Secretary-Treasurer was published in the May Journal and the reports of the Committees, which you have in your hands, are as follows:

Committee on Tuberculosis, Dr. L. J. Moorman; Cancer Study and Control, Dr. E. S. Lain; Education, Dr. LeRoy Long; Conservation of Vision, Dr. E. S. Ferguson; State Medical Society on Crippled Children, Dr. Earl McBride, and the Secretary-Treasurer's report by myself. I wish to give the delegates opportunity and advance information as to anything they might want to change or comment upon, so those reports are now before you.

Announcement by Dr. Arthur W. White, General Chairman, Oklahoma City, as to entertainments for following day and meeting at Medical School and clinics to be held at St. Anthony's, Wesley, University and Oklahoma City General hospitals on Tuesday, May 28, 1929, was made.

The Redistricting Committee of the House of Delegates reported as follows:

#### REPORT OF THE RE-DISTRICTING COM-MITTEE TO THE HOUSE OF DELEGATES

We, your committee, beg to report that we have carefully gone over the present arrangement of Councilor Districts, taken into consideration the great changes in transportation lines and improvement in roads, which has occurred since the state was last divided into Councilor Districts, and believe that the following division of the state is feasible, practicable, and will be found more satisfactory than the present arrangement:

First District—Texas, Beaver, Cimarron, Harper, Ellis, Woods, Woodward, Alfalfa, Major, Dewey.

Second District—Roger Mills, Beckham, Greer, Harmon, Washita, Kiowa, Custer, Jackson, Tillman.

Third District—Grant, Kay, Garfield, Noble, Payne, Pawnee.

Fourth District—Blaine, Kingfisher, Canadian, Logan, Oklahoma, Cleveland.

Fifth District — Caddo, Comanche, Cotton, Grady, Love, Stephens, Jefferson, Carter, Murray.

Sixth District—Osage, Creek, Washington, Nowata, Rogers, Tulsa.

Seventh District—Lincoln, Pottawatomie, Okfuskee, Seminole, McClain, Garvin, Pontotoc.

Eighth District—Craig, Ottawa, Mayes, Delaware, Wagoner, Adair, Cherokee, Sequoyah, Okmulgee, Muskogee.

Ninth District — Hughes, Pittsburg, Haskell, Latimer, LeFlore, McIntosh.

Tenth District—Johnson, Marshall, Coal, Atoka, Bryan, Choctaw, Pushmataha, McCurtain.

A. H. BUNGARDT, Chairman. W. ALBERT COOK. C. A. THOMPSON.

Adopted May 27, 1929.

Dr. J. M. Byrum, Shawnee: I would like to have the endorsement of the Medical Association for an appropriation for the extension work of the University which has been going on in the State for a number of years; and, whether it is the wish of the Oklahoma medical profession that what is known as the Bureau of Maternity and Infancy be continued. In order to get the matter in some form I move that the President be empowered to select a committee of five to go over the situation and make a recommendation on both the extension service and the Bureau of Maternity and Infancy. I move that a committee be appointed to act for us.

Motion seconded and carried.

Dr. A. L. Stocks, Muskogee, spoke on medical defense.

Dr. L. S. Willour, McAlester, Chairman Medical Defense Committee: During the past year there has been not one single objection or any trouble whatever relative to medical defense in this State. There is no man who has been sued but feels that he is getting his money's worth in the \$1.00 a year that he has paid in to the State Medical Society. Oftentimes these suits are settled for less than the \$100 which is allowed. In many instances the mere employment of an attorney and answering the petition of the plaintiff stops the suit. When they see that the doctor being sued is prepared to answer and go on in and fight his case the case is withdrawn. This has occurred in many instances throughout the history of medical defense in the State Society in Oklahoma. The mere fact that the Oklahoma State Medical Association is behind each one of its members makes the fellow who is going to bring a malpractice suit think twice before he does it. I don't think there is a doctor here who believes for \$1.00 a year that he is being defended through all the courts and probably damages paid in the end. There are men in this room who have called upon this defense fund and received assistance. If any of you think you can go through all the courts on the \$1.00 I am glad to advise you the \$1.00 does not do this, and in many instances you will find that \$100 and the fact that you mean business will settle your suits before they come to trial.

Dr. Stocks: The Secretary has agreed to write an editorial on the subject, so that all the members of the Society will thoroughly understand it, and that is exactly what I had in mind when I spoke.

Dr. Thompson: I have a telegram from Dr. William E. Lower of the Cleveland Clinic, saying he cannot be present on account of the recent disaster.

Dr. McLain Rogers, Clinton, moved that the Secretary be instructed to send message of regret.

Motion seconded and carried.

Dr. Thompson: There are several committees which have made no reports:

Committee on Health Problems in Public Education.

Veneral Disease Control.

Necrology.

Contract and Industrial Practice. Committee on Crippled Children.

Dr. J. H. Scott, Shawnee: Mr. Chairman, I think some of those committees

ought to report. Contract and Industrial Practice, I think that is a very vital question in Oklahoma at this time, and that Committee ought to be requested to make a report. A great many of us are not in touch with this situation.

The President: Let us hear from the Committee on Contract and Industrial Practice.

Dr. ———: There has never been a meeting of the committee during the year, although some of them have desired a meeting. I think it is very important that we get a report from this committee.

The President: Is there any further business to come up this evening? Let us meet at 8:30 in the morning at the new Medical School Building and get the election of officers, and other business that is unfinished, out of the way as quickly as possible. The Credentials Committee will function at the proper time.

If there is nothing further the House will stand adjourned until 8:30 tomorrow morning.

The House then adjourned until 8:30 Å. M., May 28, 1929.

C. A. THOMPSON, Secretary-Treasurer-Editor.

Meeting of the House of Delegates, 8:30 A. M., May 28, 1928.

Called to order by the President, Dr. Ellis Lamb, Clinton, who, after briefly thanking the members for their cooperation and work during his incumbency in office, surrendered the chair to his successor, Dr. C. T. Hendershot, Tulsa. Dr. Hendershot called for report of the Credentials Committee, Drs. W. A. Howard, Chelsea; McLain Rogers, Clinton; A. L. Stocks, Muskogee. Dr. Howard called the roll of the House, which upon summing up was found to consist of 85 members. Dr. Hendershot then stated that the first order of business would be the election of officers, and called for the nomination for president. Dr. A. B. Chase, Oklahoma City, nominated Dr. Edmund S. Ferguson, Oklahoma City, whereupon it was moved that the election be made unanimous, and the Secretary cast the ballot of the House for Dr. Ferguson for President.

The motion was adopted.

For Secretary-Treasurer-Editor, Dr. A. L. Stocks, Muskogee, nominated Dr. Claude A. Thompson, Muskogee, and Wm.

C. Vernon, Okmulgee, nominated Dr. M. B. Glismann, Okmulgee. Ballots were distributed and the tellers reported the vote as follows: For Thompson 52; for Glismann, 32. Dr. E. S. Lain, Oklahoma City, moved that the election be unanimous, which was carried.

#### NOMINATIONS FOR COUNCILORS

In the redistricting plan adopted at the previous meeting the following Councilors were elected or declared to continue to hold office by reason of not being affected:

First District—Dr. H. A. Lile, Cherokee, elected. Second District—Dr. Frank H. McGregor, Mangum, elected.

Third District—Dr. Paul B. Champlin, Enid, elected.

Fourth District—Dr. LeRoy Long, Sr., Oklahoma City, elected.

Fifth District—Dr. J. C. Ambrister, Chickasha, elected.

Sixth District—Dr. Walter A. Howard, Chelsea, elected.

Seventh District—Dr. Wm. M. Gallaher, Shawnee, hold over.

Eighth District-Dr. F. M. Adams, Vinita, hold over.

Ninth District—Dr. Leonard S. Willour, Mc-Alester, hold over.

Tenth District—Dr. J. S. Fulton, Atoka, hold over.

Dr. Horace Reed, Oklahoma City, was unanimously re-elected as delegate to the American Medical Association, to represent the Association for the years 1931-1932.

For the meeting place for 1930, Dr. J. H. Scott, Shawnee, nominated Shawnee, and Dr. P. P. Nesbitt, Tulsa, nominated Tulsa. Shawnee received 45 votes and Tulsa 10.

The recommendations of the Council as to the budget for the fiscal year were adopted, it being found that the sum of \$13,079.00 would be necessary to properly conduct the Association's affairs during the year.

A Committee of the House of Delegates, previously appointed, offered the following motion:

#### Committee of the House of Delegates

Because we believe its activities have been in the interests of the public and scientific medicine we endorse the work of the Bureau of Maternity and Infancy of the State Health Department for the past five years and urge the Legislature to make adequate appropriations to continue this service.

Special features of the work deserving our support are enumerated below:

1. Instruction to expectant mothers and the mothers of young children by means of the month-

- ly, pre- and post-natal letters, lectures, demonstrations and personal conference with the nurses and suggest that this instruction be pushed even more vigorously.
- 2. The holding of itinerant demonstration child health conferences in which the physical examinations are made by qualified physicians, with parents instructed to have annual physical examinations of the children using their own physicians.
- 3. The promotion of post graduate courses in pediatrics and obstetrics, either alone or in cooperation with other recognized and approved agencies.
- 4. Instructions for potential mothers in the hygiene of maternity and infancy through organized classes either carried on alone or in cooperation with other recognized and approved educational agencies such as teaching training colleges and other schools.
- 5. Public counsel on how to select qualified professional men.

We, the House of Delegates of the Oklahoma State Medical Association, representing the medical profession of Oklahoma, endorse the work of the University Extension Department of the Oklahoma University in providing post praduate medical courses, conducted by nationally recognized specialists, throughout the state, where these courses are available to the physicians of this state.

We earnestly recommend that the Legislature continue appropriations for this work.

C. M. POUNDERS.
Chairman.
D. LONG.
W. H. HOWARD.
GEO. R. OSBORN.
C. W. ARRENDALL.

The report was unanimously adopted.

Dr. Fred S. Clinton, Tulsa, Chairman, Committee on Contract and Industrial Practice submitted the following report:

Report of Committee on Contract and Industrial Practice to House of Delegates of the State Medical Association.

Your Committe has not been able to complete its work in placing this report on a sound and workable basis.

In view of the importance of the undertaking and the widespread interest and activity in the development of traumatic surgery, and so-called industrial medicine, I would respectfully suggest the appointment of a Committee to make further study and undertake to bring together a better understanding in the interest of the patient, by securing a meeting of the Committee before the next State Medical Association session.

In the interest of the patient, representatives of the following organizations should meet the Committee from the Oklahoma State Medical Association:

- 1. The Employer.
- 2. The State Federation of Labor,
- 3. The Insurance Carrier.
- 4. The Hospital Association.
- 5. Industrial Commission.

#### FRED S. CLINTON,

Chairman.

Presented May 28, 1929, Oklahoma City meeting.

Dr. W. T. Salmon, Duncan, moved that the Secretary be instructed to communicate with the Oklahoma Representatives in Congress and Senate, protesting against any higher rate of duty being imposed upon surgical instruments and similar supplies, covered in the tariff now under consideration. The motion carried.

It was then moved and seconded that the House adjourn, subject to the call of the President. The motion carried.

C. A. THOMPSON, Secretary-Treasurer-Editor.

#### PROCEEDINGS OF THE COUNCIL

Oklahoma City, May 27, 1929, 3:00 P. M. Present: Drs. Ellis Lamb, President, Clinton; L. S. Willour, McAlester; J. S. Fulton, Atoka; Wm. M. Gallaher, Shawnee; F. M. Adams, Vinita; C. T. Hendershot, Tulsa; D. Long, Duncan; C. A. Thompson, Secretary-Treasurer-Editor, Muskogee.

The Committee on Auditing and Appropriations, Drs. F. M. Adams, L. S. Willour and J. S. Fulton, reported that the books of the Secretary-Treasurer-Editor had been audited, found correct and it was moved by Dr. Willour that the report be accepted and approved. The motion carried.

The budget for the fiscal year, May 1, 1929, to April 30, 1930, was discussed and the Auditing and Appropriations Committee directed to make a report.

A Credentials Committee composed to Drs. W. A. Howard, Chelsea; McLain Rogers, Clinton, and A. L. Stocks, Muskogee, was appointed.

A communication from the managers of the meeting on behalf of Oklahoma County was presented by Dr. A. B. Chase, the communication having reference to an equitable division of the expenses, incident to the Annual Session by the Oklahoma County Medical Society and the State Medical Association. It was moved by Dr. Hendershot and seconded by Dr. Fulton that a committee, composed of Drs. Fulton, Willour and Adams, be appointed to confer with Dr. Chase, and reports its conclusions to the Council.

Drs. C. T. Hendershot and D. Long, Councilors, reported, respectively, as to the conditions of their Districts. Dr. Hendershot reported the membership in his counties to be at about the point of saturation, and that no complaint had been received.

Dr. D. Long reported that he had visited all counties in his district with the exception of Garvin; that Cotton and Love counties were unorgan-

ized, the physicians in those counties, as a rule, belonging to adjacent county societies. Dr. Long was under the impression that the district composed of ten counties was too large and that it should be reduced in size. His report suggested that five counties should be large enough for a district. No other Councilor reported.

The Secretary-Treasurer-Editor called attention to the fact that the Treasurer's bond covered barely one-third of our resources and that for his and the Association's protection the bond should be increased. After some discussion it was moved by Dr. J. S. Fulton and seconded by Dr. D. Long that the bond be increased to \$10,000.00. The motion carried. The Council then adjourned to meet again upon call of the President.

C. A. THOMPSON, Secretary-Treasurer-Editor.

#### THE COUNCIL

Council, May 28, 1929, 11:00 A. M.

Present: Drs. C. T. Hendershot, President; J. S. Fulton, D. Long, W. A. Howard, W. M. Gallaher, Paul B. Champlin, L. S. Willour, C. A. Thompson, Secretary-Treasurer-Editor.

The committee on the expenses of the Oklahoma City meeting reported by Dr. J. S. Fulton and decision that the State Medical Association should pay half of certain expenses, or \$370.00. Motion was adopted that this amount be paid.

Dr. J. S. Fulton moved that hereafter the Council, whenever such should be found necessary, pay \$250.00 toward the expenses of the Annual Session. The motion was adopted.

Dr. C. A. Thompson announced that he would be unable to attend the Portland meeting of the American Medical Association. It was moved by Dr. J. S. Fulton that Dr. L. S. Willour represent the Association at Portland in his stead. The motion was adopted.

It was moved by Dr. L. S. Willour that the Council "do not consider at this time any charges which might be filed before the Council." The motion was enlarged to give notice to all persons hereafter bringing charges before the Council shall file such charges at least sixty days before the Annual Session, or the meeting of the Council which would consider them, and that a sufficient number of copies of the charges must be submitted to supply the President, Secretary-Treasurer and each Councilor, as well as the party or parties charged, exact copies of the charges filed. The motion was adopted.

The Auditing and Appropriations Committee asked that the following budget be approved and submitted:

Printing Journal, office supplies, miscellaneous printing \$7,000.00
Office rent \$384.00
Stamps, office and Journal \$15.00
Treasurer's bond \$50.00
Press Clippings \$60.00
Auditing of books \$100.00
Expenses, Oklahoma City meeting \$370.00
Council & Delegates' expenses, estimate Extra clerical work, misc. \$200.00

Salary, stenographer 1,200.00 Salary, Secretary-Treasurer-Editor 2,400.00

\$13,079.00

The above estimate was approved. The Council then adjourned.

C. A. THOMPSON, Secretary-Treasurer-Editor.

#### DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Buliding, Oklahoma City

Some Remarks on the Bactericidal Properties of Zinc Oxide, H. Haxthausen, Brit. J. Dermat. 40:497 (Dec.) 1928.

This is a lengthy discussion of the bactericidal qualities of zinc oxide and these qualities are shown to be of greater significance than is commonly supposed. His experiments show that so far as the two classes of bacteria of most importance in the pathologic changes of the skin (staphylocci and streptococci) are concerned, an inhibitory effect under certain conditions is produced by zinc oxide. It also appears that the active substance is an actually bactericidal one, capable of diffusion into the surrounding substratum and not limited to the area directly covered. The formation of acid is a deciding factor of this influence, and experiments show that the inhibitory action of zinc oxide is considerably increased when agar, which is slightly acid, is used instead of neutral agar. Haxthausen feels that zinc oxide is valuable both as a therapeutic agent in established infections of the skin, and as a prophylactic against secondary infections of the various dermatoses. Although zinc oxide is almost neutral in its reaction, it is split up by the acid-producing microbes into disinfectant compounds, thus limiting its action in some degree to the site of the infection. This dependence on the presence of acid gives zinc oxide a peculiar position among the bactericidal substances.

## Experimental Blacktongue: Yeast a Preventive. J. Goldberger and others, Pub. Health Rep. 43:657. (March 23) 1928.

The blacktongue-producing potency of a basic experimental diet, and of three modifications was tested by Goldberger and others, thirty-three times in thirty-one dogs with the production of thirty-three separate attacks of blacktongue. These attacks, with one exception, developed within a period of sixty-one days. Experimental blacktongue is caused by a dietary deficiency which is capable of being corrected by something like yeast. This blacktongue preventive in yeast is inactivated by heat sufficient to char the yeast; it retains its preventive potency in large measure after heating in the steam autoclave at a pressure of fifteen pounds for seven and one-half huors, and it is absorbed from an acidulated aqueous extract of either dried yeast or yeast first autoclaved at a pressure of fifteen pounds by English fuller's earth. It cannot be identified with any of the older well recognized dietary essentials, but is believed to be identical with the thermostable substance of Smith and Hendrick. Both the blacktongue preventive and the pellagra preventive are present in yeast. Besides certain other evidence pointing to the fundamental identity of blacktongue and pellagra, this association strengthens the probability that the blacktongue preventive and the pellagra preventive, or vitamin P-P are identical.

## A Contribution to the study of the Staphylococci of the Skin. J. F. Smith, Brit. J. Dermat. 40:-483 (Dec.) 1928.

The author investigated the bacterial flora in cultures made from the washings taken from the hands of 150 persons, of whom 80 had some pyodermia, or moist dermatitis, and 70 an unbroken, not obviously infected skin. He isolated and studied 225 different strains. The investigation thus worked out showed that among the personnel and frequent visitors of a general hospital, it is un-common for pyococci to be found on the hands unless the person is suffering from a frank pyodermia, or has been in contact with such infection. These cases may be classed as pyococcus-carriers. Smith states that it follows that in cases of recurrent pyogenic infection of the skin, such as furunculosis, etc., surface antisceptics is more rational than attempts at raising the general resistance by means of vaccines and other forms of medication. He has used this observation with success in his practice. During the past six years he has treated 53 patients with recurrent furunculosis with antisceptic lotions and in only five cases has he had to resort to other therapy, the remaining 48 patients responded to local treatment alone. The X-ray was used in nine cases. Any local contributing cause as well as general cause, such as glycosuria was given attention. The author gives a short summary of the bacteriologic examinations in the 150 cases accompanying the article.

#### Epidemic Pemphigus Neonatorum (Impetigo?): Treatment. J. A. Keho, Northwest Med. 28:37 (Jan.) 1929.

The author of this article uses a one per cent oleate of copper ointment, prepared with lard or olive oil, for the removal of the vernix caseosa, when he feels that the child is infected at the time of birth, before the organism has invaded the child's skin, as well as before it has been distributed to other infants in the nursery. Keho reports that this ointment was used for the removal of the vernix from each child that came to the nursery, during an epidemic in one hospital. On these no vesicles appeared. On those that were already affected, the skin cleared up in a few days after its use. There has not been any epidemic in that hospital since.

## Contributions to the Abnormal Forms of Lichenification. E. Bizzozero, and F. Narducci, Ann. de Dermat. et Syph. 9:857, (Oct.) 1928.

This article contains a discussion of the conception of Brocq and Pautier on the abnormal forms of pruritis and lichenification. The author agrees with the point of view of these two writers and reports two cases as additional and further clinical interest to the conception. The first case reported shows a lichenified patch on the dorsem of the hands, the cutaneous was preceded for some time by a violent pruritis of the hands. The authors enroll the case among the giant lichenifications, so far noted principally on the scrotum and the upper inner thighs. The second case showed large lichenified patches on the outer,

upper legs. There were small conical nodules on the lichenified skin. The development of the skin manifestations was preceded by long continued itching of the area. The clinical picture had features suggestive of lichen ruber moniliformis and lichen obtusus, but the authors regarded it as an example of giant lichenification, basing their opinion partly on histologic study. Thus, they not only accept Brocq and Pautier's conception, but believe that it may be considerably enlarged.

#### ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D. 717 North Robinson Street, Oklahoma City.

Thirteen Cases of Impacted Medial Fractures of the Neck of the Femur. G. Odelberg-Johnson (St. Erik's Hosp.) Acta Chir. Scandinavica, lxiii, 107, 1928.

The author collected thirteen cases of medial impacted fractures of the femoral neck in women between fifty and eighty-five with osteoporosis. In all cases a wide contact between the fragments was verified from the start by roentgen-ray examination taken in two planes at right angles. Practically all were merely treated with rest in bed for two or three months, and fixation of the limb with sand bags (position not mentioned); no reduction. Massage and movement were initiated as soon as the patient could lift the limb straight from the bed. In spite of early weightbearing, which the author advises against, eleven cases obtained bony union. Roentgenograms showed maximum decalcification reaching its maximum at two to three months. Only after ten to eleven months did calcification commence, generally as a mottled sclerosis in the fractured ends. Only after about two years is the whole cancellous system of the femoral end reestablished.

These cases tend to confirm the old assumption that a large percentage of impacted medial fractures of the femoral neck unite under formation of callus. In none of the cases did shortening exceed two centimeters. The author believes with Kocher that medial fractures of the femoral neck arising from a blow on the lateral aspect of the great trochanter are a combined compression and bending fracture.

A Case of Osteitis Fibrosa and Multiple Fibromyxomatous Muscle Tumors. Ali Krogins (Helsingfors). Acta Chir. Scandinavica, lxiv, 465, 1928.

The author describes his case of osteoitis fibrosa cystica generalisata in a thirty-eight-year-old female. In the course of five years, several tumors arose in the patient's muscles. This patient had fractured her right tibia six times between the ages of six and fifteen years and presented osteoid and cystic changes in tibiae, fibulae, femora and humerus. A large goiter was present in adolescence. In her second and third decades she was repeatedly operated on for removal of soft-part growths. Histologically these appeared as fairly well defined fibromyxomata.

A similar case in a sixty-six-year-old female was reported by Henschen in 1924. No other reported case is known.

The author believes there exists a genetic relation between the bone and muscle tumors and that both represent a process of fibrous degeneration of analogous character.

In view of the recent work on the pathogenesis of the group of obscure bone dystrophies, the article is of considerable interest.

Concerning the Investigations on the Heredity of Orthopaedic Conditions. E. Isigkeit. Arch. f. Orthop. u Unfall-Chir., xxvi, Oct. 1928.

Concerning the congenital dislocation of the hip, the author could prove on the basis of numerous material that the heredity coefficient is rather high, i. e., twenty per cent. If one further considers that most people have only scant information about their ancestry and relatives, and that in the recession polyhybrid types of heredity a deformity may remain latent for several generations, one should be inclined to set the heredity factor rather high.

The congenital dislocation is the most frequent of all congenital deformities and occurs at the rate of about two per cent of population; the number of people carrying a latent hereditary factor must, therefore, amount to a considerable percentage of the population. We must assume that there are now sexual and dominant sexual factors at work. An accurate hereditary formula cannot be given.

The great number of breech and cross presentations as well as the frequent scarcity of amnion fluid points to mechanical-traumatic factors. Whether these are sufficient explanation is doubtful. Experiments have shown that it is next to impossible to produce a dislocation of the hip in the new born. As far as the pressure of the uterine wall is concerned (smallness of uterus) it may exceptionally be the cause of congenital dislocation, especially in cases associated with other congenital deformities. But the certainty does not apply to the large majority of congenital hip dislocations. There is also no explanation for greater incidence of the congenital hip dislocation on the left side.

Construction Types and Blood Supply of the Foot in Connection with the Mechanics of the Flat-Foot. J. B. Rywlin, Arch. f. Orthop. u. Unfall-Chir., xxvi, 740, Oct. 1928.

There are three types of foot: the arcuar, the flat and intermediate type. From the viewpoint of evolution the arcuar type is the progressive one, the flat type the atavistic one.

The form of the foot is determined by the external fornix (h-e) the greater index characterizes the arcuar and the smaller the flat type. The former view on the so called pes planus spurius in children based on clinical observations (sole impressions) is borne out by anatomical investigations; the index of the outer fornix (arch) may be high, low or intermediate in children. Characteristic for the arcuar fornix is the more powerful development of the trabeculae in comparison with the inner fornix; then the flat-foot conditions are reversed. This latter fact points to the independent function of inner and outer arch. Among the numerous anomalies of arterial supply of the foot, the author also distinguishes three types: the progressive, peculiar to the arcuar type of foot, the development of the dorsal system is prevalent; the atavistic type is characterizd by prevalence in the plantar system of arterial supply; the intermediate type between the former

The meager development of the plantar system in the arcuar type of foot must, among the conditions predisposing to flat-foot, create a propensity to develop a pes planus dolorosus. These peculiarities in the blood supply of the arcuar foot may also produce vasomotor disturbances as the primary factor, which secondarily leads to static disturbances.

On the other hand, the predominance of the plantar system in the flat type makes this type very resistant against circulatory impairment. It follows that in the flat type static influences are the primary factors in the development of flat-foot. This applies especially to the severe flat feet which develop without vasomotor symptoms.

#### An Undescribed Disease of Bone, J. H. Sheldon. British J. Surg., xvi, 405, Jan. 1929.

A boy of eleven developed a bony tumor on the head of the right tibia. At operation this proved to be an osteoma, but multiple fibromata were noted in the patellar tendon. Six years later a second operation was done for recurrence, but the tumor was found to be in the patellar ligament and the capsule of the knee joint with another area in the rectus muscle. The left knee showed a beginning growth with a line of ossification in the patellar ligament. After the second operation the disease developed faster. Soft painless swellings appeared at the wrist, elbow, arm and axilla; ruptured and discharged sterile thick, yellow pus; but then healed. A bony tumor appeared in the right shoulder and humerus and grew rapidly. Death occurred nine months later.

Postmortem examination showed that the tumor of the right shoulder was a spindlecelled osteosarcoma. The right scapula, humerus, and clavicle were imbedded in the tumor which contained bony and cartilaginous areas and which tended to overlie the normal bone. There was bony union between the radius and the carpal bones with nodular bony thickening in the interosseus membrane. Everywhere there was extensive bone formation in the joint capsules, muscles, ligaments, tendons, interosseus membranes and arachnoid. A definite thyroid tumor, aplasia of the bone marrow, and normal chemical analysis of the bones were observed.

It is noted that the lesions found were those found in three bone disorders. In progressive myositis ossificans and hereditary element is present as in this case. The hypothesis is offered that there was an error in the development of one of the chromosomes, giving the picture also found in diaphyseal aclasis. There was also evidence of acromegaly. The case is reported with the hope that it will tend to throw light on the nature and possible interrelationship of these three diseases.

### EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

Fracture of the Optic Canal., Barkan, O. and Barkan, H.: Am. Jour. Ophth., 1928, xi, 767.

For years it has been known that following a blow on the frontal region, vision may be lost. The effect on vision is due to fracture of the optic canal, with haemorrhage into the sheath of the nerve or laceration of the nerve, or to fracture of the anterior clinoid process. General or local symptoms may be slight, but perimetric fields show partial constriction in a fair percentage of cases.

The authors have seen twenty-two cases in six years, and in this article report five with visual field charts. They believe that a sector defect extending to and including the macular region is sufficiently characteristic to be pathognomonic. They suggest early operation to remove pressure on the nerve.

#### Argyrosis of the Tarsal Conjunctiva in an Infant., Vail, D. T., Jr.: Am. J. Ophth., 1928, xi, 782.

Vail reports a case of membranous conjunctivitis in a boy fourteen months old, which was caused by the injudicious use of strong solutions of silver nitrate. When the child was a month old a mucopurulent secretion occurred in the right eye with the formation of a membrane on the tarsal conjunctiva. Six months later the left eye became similarly involved. Silver nitrate solutions varying in strength from two to five per cent were used for months. An ulcer formed on the left eye which, following Saemisch section, became phthisical. As diphtheria bacilli were found diphtheria antitoxin was given. On three occasions all granulation tissue and fibrous exudate was removed down to normal tissue. One radium treatment was given and resulted in a burn on the cheek.

Following an examination of tissue removed by the author, Verhoeff reported that the brownish pigment granules were precipitated silver.

The Diagnosis of Intracranial Lesions of General Interest to the Profession, Referable to the Diseases of the Ear., Farmer, A. W.: Med. J. Australia, 1928, ii, 520.

Purulent labyrinthitis of the diffuse manifest type may occur whenever there is a fistula from the infected middle ear into the labyrinth. Severe vestibular symptoms are produced, including headache, violent vertigo with vomiting, and spontaneous nystagmus to the opposite side. On destruction of the labyrinth, the functional tests will reveal absolute deafness, absence of response to the caloric and rotation tests, and a negative fistula symptom.

Infection spreading into the middle fossa produces a subdural abscess. In the superficial type, headache may be the only symptom. Headache, periorbital pain, and sixth nerve paralysis indicate a deep subdural abscess. Superficial and deep abscesses also occur in the posterior fossa. Meningitis confined to the middle fossa may give rise to headache alone. In basal meningitis, headache is usually localized, but may be general. Lumbar puncture is a valuable diagnostic procedure and not dangerous. The fluid is under increased pressure and is cloudy or purulent. In tuberculous meningitis, the fluid is clear and opalescent.

Temporal lobe abscess may pass through two stages: (1) a manifest stage, in which signs and symptoms are present, and (2) a latent stage which may last for several months with no symptoms beyond headache. In the manifest stage there is drowsiness with headache localized to the temporoparietal lobe. Sometimes tenderness is found in this area on purcussion. Nystagmus

is rare except when the abscess ruptures into the ventricle. Choked disc is seldom seen. A fairly constant sign is partial hemianopsia on the same side as the lesion. Anomia and paraphasia are common.

Sinus thrombosis follows a persinal abscess. The symptoms of sinus thrombosis are euphoria, a sceptic type of temperature with rigors, haematogenous icterus of the conjunctiva, petechiae of the skin, and choked disc. Choked disc appears late in the disease.

In cerebellar abscess, nystagmus is an important sign. It is usually coarser than the nystagmus, due to suppurative disease of the labyrinth. It may be toward either side, but is more usually toward the side of the lesion. It increases as the pressure becomes greater. Choked disc is more common in cases of cerebellar abscess than in those of temporal lobe abscess. Vomiting and headache are constant. Definite vertigo is present. The patient tends to fall toward the side opposite the one on which the lesion is located. Disdiadokokinesis is fairly constant.

An acoustic nerve tumor produces deafness, tinnitus, and vertigo with facial paresis. As the tumor enlarges, the fifth and sixth nerves become involved. Later, the ninth, the tenth and eleventh nerves are affected. The chorda tympani is affected early with consequent loss of taste in the area supplied by this nerve.

The Influenzal Ear., Sharpe, W. S.: Proc. Roy. Soc. Med., Lond., 1928, xxi, 1923.

During the course of influenza, the author has noted several types of ear involvement. The first is characterized by the gradual onset of true nerve deafness, which is of directly toxic origin and in a few cases is followed by complete recovery. The second is characterized by acute myringitis with intermembranous haemorrhages and is relieved by scarification, or myringotomy, if bulging occurs. The third is characterized by inflammation within the tympanic cavity with severe symptoms, but is completely relieved by myringotomy if the operation is performed promptly.

Sharpe concludes that if involvement of the ears by influenza is seen early and treated energetically, surgery of the mastoid will seldom be necessary and complete recovery will usually result without complications.

Tinnitus Aurium: Some Considerations of its Causes, with special references to Analogies., Williams, T. J.: Ann. Otol., Rhinol. and Laryngol., 1928, xxxvii, 922.

Tinnitus aurium is perhaps the most frequent complaint, for which treatment by an aurist is sought. It is not a disease in itself nor a definite symptom of aural disease, and its cause is still unknown.

Hissing sounds usually indicate a labyrinth at the point of nerve termination. Clicking is attributed to the spasmodic contraction of the salpingopharyngeus muscle. Bubbling noises may arise from an exudate in the middle ear. Pulsating or beating noises are due to circulatory disturbances. The causative factor may possibly be a general sclerosis, ossification, or calcification of the eighth nerve, or cortex. In some cases, however, the condition is of psychic or neurasthenic origin.

Labyrinthitis, a Complication of Middle-ear Suppuration: A Clinical and Pathological Study., Turner, A. L., and Fraser, J. S.: J. Laryngol. and Otol., 1928, xliii, 609.

Of thirty-one cases of labyrinthitis in which the authors made microscopic studies, the condition followed middle-ear suppuration in five, and chronic purulent otitis media in twenty-six. Only three cases with involvement of the inner ear could be attributed to acute middle ear suppuration.

Of the twenty-six patients with labyrinthitis following chronic middle-ear suppuration, all but three were under thirty-one years of age. The cause of the original ear discharge was ascertained in seven cases. In five it was measles, and in two, scarlet fever.

Cholesteatoma was noted on otoscopic examination, at operation, or on subsequent microscopic examination in twenty of the twenty-six cases. There was only one case of serous labyrinthitis. In six cases, circumscribed labyrinthitis was found in the lateral canal, and in one case, in the cochlea. The purulent stage was noted in thirteen cases, but in five of these there was evidence of granulation or connective tissue.

The Diagnosis and Treatment of Chronic Maxillary Sinus Infection: Extension of the Technique to Include Control of Haemorrhage by Ligation of the Terminal Branches of the Internal Maxillary Artery and Resection of the Middle Meatal Wall Giving Operative Approach to the Ethmoid and Sphenoid Sinuses, Sewall. E. C.: Arch. Otolaryngol., 1928, viii, 405.

In the diagnosis of chronic maxillary sinusitis, the history, the symptoms, the findings of the physical, X-ray, and cytological examinations, and the results of irrigation must be taken into consideration. Sinusitis is to be suspected in cases of recurrent colds in rapid succession in which smears and the cytological examination show an increase in the number of leucocytes. Negative roentgenograms in the presence of a nasal discharge cannot be regarded as conclusive evidence of the absence of sinusitis.

If possible, persons suffering from chronic maxillary sinus infection should move to a region with a warm, dry climate. The non-operative treatment of the condition consists in the use of local measures to decrease swelling in the nose and promote drainage. When surgery is indicated, the author performs a radical Caldwell-Luc operation with removal of the middle meatal wall. To prevent bleeding, the terminal branches of the internal maxillary artery are ligated where they enter the nose. The infra-orbital and supra-orbital ethmoid cells are exenterated and the sphenoid is drained. If necessary, a fronto-ethmosphenoidectomy is performed later. All of the surgery is done under local anaesthesia. One hour before the operation, the patient is given 1-100 gr. of scopolamine and 1-4 gr. of morphine; procaine hydrochloride is injected along the gingivolabial margin; and cocaine crystals are applied intranasally.

#### TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

A Study of Pulmonary Tuberculosis in Children. A. Levinson. The American Review of Tuberculosis, May, 1929.

After a study was made of 119 cases of tuberculosis in children in the Cook County Hospital it was found that the cases fell into three groups as far as pulmonary involvement was concerned: (1) generalized miliary tuberculosis, (2) acute tuberculous pneumonia and, (3) subacute, or chronic pulmonary involvement. There were 69 cases in the first group and fifteen in each of the other two; of these children 25 were White, eleven Mexican and 83 Negro. While active pulmonary tuberculosis is especially frequent among Negro children, the author feels that it is due more to the unfavorable economic conditions under which they live than to any especial racial susceptibility to tuberculosis. Miliary tuberculosis constitutes the bulk of acute pulmonary involvement in children and while nearly every part of the body is infected the lungs and, in the last stages, the meninges produce most of the symptoms. Differential diagnosis between the pneumonic form of miliary tuberculosis and acute tuberculous pneumonia is almost impossible, but consolidation of one or more lobes of the lung, persistent cough, rapid wasting and X-ray findings of consolidation without symptoms of general miliary tuberculosis such as meningitis point to acute tuberculous pneumonia. author feels that chronic pulmonary tuberculosis in children is not so rare as it was formerly considered, as he has encountered it in fifteen of his 119 cases. Differential diagnosis frequently depends upon an autopsy, but history, physical findings, X-ray and the tuberculin test aid greatly in the diagnosis of pulmonary tuberculosis in children. A history of contact with a tuberculous patient is especially significant. Tuberculin tests are a great aid in establishing a diagnosis; when this test is positive at first and later becomes negative with an exacerbation of symptoms it is considered to point to the development of a miliary process. The main cause of difficulty in diagnosis is the tendency of tuberculosis to simulate other conditions and vice versa; grippe, nontuberculous pneumonia, typhoid fever and meningitis may simulate miliary tubeculosis, while acute pulmonary tuberculosis may be mistaken for acute pneumococcus pneumonia. Chronic pulmonary tuberculosis must be differentiated from nontuberculous bronchitis and from unresolved pneumonia. Bronchiectasis causes some difficulty in diagnosis as the dilatation of the bronchioles is easily mistaken for tuberculous cavities. The mortality in this series of cases was very high, all the cases of miliary and acute tuberculous pneumonia dying. Of the fifteen cases of pulmonary tuberculosis running a chronic course eleven died, one is progressing, two were lost track of and one is doing well. This is partly explained by the fact that most of these patients were brought to the Hospital in an advanced condition. Ultraviolet radiation was tried in some cases with fever under 101 but was found useless; treatment in such advanced cases can be supportive only.

Tuberculosis and Goiter, E. P. Sloan, M. D. The Journal of the American Medical Association, June 18, 1928.

Since goiter and early tuberculosis both produce tachycardia, instability of the pulse, progressive loss of weight, sweating, nervous symptoms, emotional changes and, in many cases, a similar slight increase in the metabolism rate, differential diagnosis is extremely difficult at times. Diagnosis is most important, as it may save the patient years of anxiety and invalidism as well as much needless expense. Three conditions are possible, and must be considered in making an early diagnosis: (1) incipient tuberculosis without demonstrable lung lesion, resembling a mild type of exopthalmic goiter, (2) the mild type of exopthalmic goiter resembling early tuberculosis and, (3) coexistent tuberculosis and goiter. Rest being the essential in the treatment of all these conditions, patients in all three groups are frequently benefitted by sanatorium care, although those in the two latter groups will continue to have a pulse rate higher than the temperature would lead one to expect. The incidence of coexistent tuberculosis and goiter is fairly high, especially in regions where goiter receives much attention. As both diseases tend to disturb metabolism and to produce prolonged toxemia, their combination makes a hard load for the patient to carry. While sanatorium treatment often benefits the patient with both these conditions, surgery is frequently indicated, especially in those cases with arrested tuberculosis and a toxic goiter having a faster pulse rate than would be expected from the temperature, also in those cases showing improvement of the chest condition under routine care with continuation of goiter symptoms and in some cases of advanced tuberculosis with rather sudden devel-opment of thyrotoxicosis. If the patient has the resistance to carry both diseases, he should improve remarkably when the thyrotoxicosis is removed. If death from tuberculosis is inevitable, operation is contraindicated. Practically all of the author's 400 patients known to be tuberculous before thyroidectomy, have made satisfactory improvement following the operation.

#### **FLIES**

From entomologist, North Carolina State Agricultural Station, and, Journal, Oklahoma State Medical Association, page 167, June, 1919:

Formalin Ounces I Water.
Sweet Milk, A. A. Qs. Ounces XVI

Expose in shallow plates or saucers, a piece of bread in the center of the fluid gives more space for flies to alight, and attracts a greater number of them.

### FORMATION OF VESICAL CALULI

In five cases of urinary lithiasis, Proteus ammoniae was isolated by Benjamin H. Hager and Thomas B. Magath, Rochester, Minn. (Journal A. M. A., Jan. 28, 1928). Calculi can be experimentally produced in the bladder by Proteus ammoniae under favorable conditions. It is possible that deficiency of vitamin A is favorable to the implantation of Proteus ammoniae.

### OFFICERS OKLAHOMA STATE MEDICAL ASSOCIATION.

President, 1929-30, Dr. Claude T. Hendershot, Tulsa. President-elect, Dr. Edmund S. Ferguson, Oklahoma City.

Secretary-Treasurer-Editor, Dr. Claude A. Thompson, Muskogee.

Meeting Place, 1930, Shawnee.

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H. M. Eyans	Ruch Springs	P. E. Mitchell	Watamala
n. M. Evans	Rush aprings	D D Mannia	wetumka
G. R. Gerard	Chickasha	R. D. Morris	Stewart
P. J. Hampton	Rush Springs	J. F. Musser	
A. E. Hennings	Tuttle	C. E. Parker	Dustin
D II	Minas	Ira W. Robertson	Holdonzilla
R. Hume		I D Coott	Hordenville
A. B. Leeds		J. D. Scott	Holdenville
J. S. Little	Minco	W. L. Taylor	Gerty
W. H. Livermore		C. S. Wallace	Holdenville
C O Manual	Chieleasha	G. H. Wallace	Holdenville
S. O. Marrs	Cnickasna	C Cook Whittle	. II oldenville
R. H. Mason	Chickasha	C. Cash Whittle	Holdenville
C. P. Mitchell	Chickasha	TACIZOON CONTINUES	
A. W. Nunnery		JACKSON COUNTY	
T T D	Offickasiia	E. A. Albernathy	A 1tora
J. L. Renegar	Tuttle	D. A. Albernathy	Altus
A. C. White	Chickasha	Thos. M. Berry	Eldorado
L. E. Woods		R. F. Brown	Altus
		A. C. Byars	Elmer
GRANT COUNTY		Emory S. Crow	Olugtoo
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A. Hamilton		R. H. Fox	Altus
		J. B. Hix	Altus
I. V. Hardy		J. A. Humphrey	
E. E. Lawson		E W Mohar	Altara
S. A. Lively	Wakita	E. W. Mabry	Altus
J. M. Tucker		R. H. Mays	Duke
		L. H. McConnell	Altus
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C. W. Austin			
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		J. R. Reid	Altus
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W. O. Dodson	Willow	D O G	TT dwiele
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V. Kuchar	Shops Bldg. Medical Arts Bldg.
J. H. Kuhn	Medical Arts Bldg.
E. S. Lain	Medical Arts Bldg.
Wm. Langsford	Gen. Del., Tucson, Ariz.
Wann Langston	University Hosp.
Geo. LaMotte	Colcord Bldg.
N. E. Lawson	Medical Arts Bldg.
E. E. Lehmer	199 W 4th
A. R. Lewis	Shang Plde
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LeRoy Long LeRoy D. Long Ross D. Long T. R. Longmire R. E. Looney	Medical Arts Bldg
LeRoy D. Long	Medical Arts Bldg.
Ross D. Long	Medical Arts Bldg.
T. R. Longmire	322 1-2 N. Broadway
R. E. LooneyR. F. D	D. No. 6, Nashville, Tenn.
R. S. Love	
Dick Lowry	Medical Arts Bldg.
Tom Lowry	Medical Arts Bldg.
E. Margo	Madical And Did
G-F Mathewa	Medical Arts Bldg.
G. F. MathewsE. D. McBride	717 N Pohingon
J. C. McDonald	200 W 1945
J. P. McGee	Medical Arts Bldg
J. P. McGee D. D. McHenry	Medical Arts Bldg
L. C. McHenry	Medical Arts Bldg
J. R. McLauchlin	Medical Arts Bldg. Medical Arts Bldg.
W. H. Miles	203 City Hall Bldg.
R. C. Mills	203, City Hall Bldg.
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L. J. Moorman	1200 N. Walker
C. D. Moore	Perrine Bldg.
Ellis Moore	Medical Arts Bldg.
M. V. Moth	
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J. Z. Mraz	300 W. 12th
J. Z. Mraz	Amer. Nat'l Bldg. 300 W. 12th Medical Arts Bldg.
P. D. WHISICK	Wedles Arts Ride
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W. M. Mussil R. E. Myers	Medical Arts Bldg. Perrine Bldg. St. Anthony's Hosp.
W. M. Mussil R. E. Myers L. A. Newton	Medical Arts Bldg. Perrine Bldg. St. Anthony's Hosp. Medical Arts Bldg.
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Headquarters and Meetings at President Hotel.

OPERATIVE AND DIAGNOSTIC CLINICS daily from 8:30 to 11:30 at Allied Hospitals. A COMPLETE POST-GRADUATE COURSE at the President Hotel. Twenty Classes each morning. CLINICS AND CLINICAL LECTURES each afternoon by the following distinguished guests:

Dr. Chevalier Jackson, Philadelphia, demonstrating the uses of the bronchoscope and the removal of foreign bodies from the bronchi of the lungs. He will also give an address on "Pulmonary Congestions".

Dr. George W. Crile, Cleveland, will give an address on "The Surgical Abdomen" and will hold a surgical diagnostic clinic.

Dr. Thomas McCrae. Philadelphia, giving a clinic on "Unusual and Usual Medical Cases". He will give an address on "Differential Diagnosis of Certain Chest Lesions".

Lesions".

Dr. Beln Schiek, Austria, and New York City, will demonstrate his famous "Schick Test", give a clinic and an address on "Feeding Problems in Children".

Dr. William Allen Puscy, Chicago, will hold a clinic on "The Diagnosis and Treatment of Certain Skin Diseases". The subject of his address will be "The Use of Helio-therapy in the Treatment of Certain Skin Lesions".

Dr. Robert Osgood, Boston, will give an address on "Newer Methods in Treatment of Arthritis" and a clinic on "Polyarthritis".

Dr. J. C. Litzenberg, University of Minnesota, will give an account of his latest research on "Tubal Pregnancy", and will hold a clinic on "The Differential Diagnosis of Tubal Pregnancy".

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Dr. Vilary P. Blair, St. Louis, will give a clinic and demonstration of "Plastic Work on the Face", and an address on "Newer Methods of Skin Grafting".

Additional distinguished guests will be announced later.

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# THE JOURNAL

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INTRACRANIAL HEMORRHAGE IN THE NEW-BORN

CLARK H. HALL, M.D. OKLAHOMA CITY

The recognition of the intracranial hemorrhage in the new-born is exceedingly important. The diagnosis is fairly definite and the outcome is not always hopeless. Infant mortality in general has decreased, but this condition is still the cause of a large number of deaths during the first few days of life. Green found the condition present in 55 of 177 consecutive necropsies, or 31 per cent, performed at the Boston Lying In Hospital.

Etiology—Morse divides the causes into three groups—trauma, cerebral congestion and disease.

Formerly all cases of intracranial hemorrhage were thought to be due to trauma. This does not seem to be the case however, as the condition is found in cases with a strictly normal delivery. When the hemorrhage follows trauma, it is due to the overriding of the bones, causing a rupture of the sinuses, tearing the meninges or small veins. The trauma may be due to instrumental delivery, or to manipulation such as version and extraction. Abnormalities in size and shape of the pelvis may be the cause of the injury. Pressure of the mother's soft parts may cause the trouble. The importance of trauma is an established fact, as the death rate from intracranial hemorrhage is higher in the first born and in infants over the average size (Burpee).

In most cases there is cerebral congestion in the infant during delivery. The thin capillaries may give way, due to the increased pressure, and intracranial hemorrhage results. Asphyxia may play an important part here.

Disease—Syphilis has long been regarded as one of the foremost causes of intracranial hemorrhage. Except in the case of the premature, this is not now thought to be very often true. The hemorrhagic ten-

dency in the new-born is a predisposing factor. Sharp and MacClaire are of the opinion that hemorrhagic disease is a less prominent factor than we formerly believed. Toxemia of unknown cause may play a part.

Symptoms—The symptoms, of course, depend upon the location and amount of the hemorrhage. The location may be any place within the infant's cranial cavity; supratentorial, infratentorial, or mixed. Rarely, it may occur in the ventricle or brain substance. Foot distinguishes two main clinical groups: (a) The rapid traumatic group, which is due largely to the rupture of a large vessel or vessels. Here, the symptoms come on soon after delivery and the bleeding tendency plays a minor role. The infant is cyanotic, respiration is labored, tremors develop in the arms and legs and death usually takes place within a few hours. If recovery does take place, spastic paralysis develops. (b) The slow spontaneous type due to an injury, which may be made dangerous through the tendency to bleed. This is probably the most frequent type. The symptoms do not appear until pressure is present. The child may seem to be normal for the first few hours and then it is noticed that he does not nurse so well. He becomes restless and cries a great deal. Often it is noticed that the tongue protrudes. Cyanosis is present and may be constant, but usually it is intermittent. Glasser states that when intermittent or paroxymal cyanosis is present, blood clots are invariably found around the medulla oblongata at autopsy. The intermittent cyanosis may, perhaps, be explained on the basis of pressure by the clots affecting the respiratory or vasomotor center or both. Congenital heart disease has to be differentiated, as it may be the cause of cyanosis. Evidence of cerebral irritation is noted, as there is spasticity, localized twitchings and perhaps convulsions. The fontanelle is usually bulging in hemispheric hemorrhage. The head is retracted in the infratentorial type. There may be a diminished coagulability of the blood. Carr in a series

of 200 new-born babies found the average bleeding time in normal cases to be two minutes and five seconds. The average clotting time in the normal cases was three minutes and two seconds.

Spinal fluid—The changes in the spinal fluid in cerebral hemorrhage depend upon the amount and type of hemorrhage. In a large hemorrhage the fluid is bloody. In basal capillary hemorrhage the fluid is xanthochromatic, but may be bloody and occasionally clear. The amount of protein may or may not be increased. Usually there are many red blood cells. A few red cells often result from the trauma of the lumbar puncture.

Diagnosis—Foot very nicely sums up the diagnosis—"In the first 24 hours after a rapid or forced delivery, or even after a normal delivery, irritability or extreme lethargy, disinclination to nurse, protrusion of the tongue; in the second 24 hours tenseness of the fontanelle, spastic twitchings of the limbs, intermittent cyanosis or paleness, all point to a progressive hemorrhage within the infant's skull."

Prognosis—Probably a large number of slight hemorrhages are not recognized and cause no symptoms. In a large hemorrhage, and especially in cases where no treatment is instituted, the mortality is high. In this group, if the patient survives, there is a spastic paralysis. These results may not show up for a few months. Later, mental retardation or epilepsy often develop. Some of the milder cases recover almost entirely.

Treatment—The most skillful obstetrical care will reduce these cases to a minimum. The general care of the baby is very important. He should not be moved from the crib for feedig, dressing or changing the diaper. He should not be put to the breast but milk should be expressed and given with a tube or Breck feeder. Care must be exercised that the body fluids are maintained. Lumbar puncture is done for two reasons—diagnosis and treatment. As a treatment, it relieves pressure and is repeated every eight to twelve hours as needed, according to symptoms. The fluid should be allowed to run off until the fontanelle is depressed, if distended, or until the fluid drops at the normal rate. The bleeding and coagulation time should always be determined. When the coagulation factors are deficient, blood should be given. Whole blood is given intramusculary 20 to 30 c. c. every eight hours for at least three injections. Citrated blood may be

given intraperitoneally. The injection of the blood is given as long as needed and the treatment should be effective by the second day. Surgical decompression is not of value unless the site of the hemorrhage is localized. The general treatment and feeding should be continued with the child in the crib, disturbing it as little as possible for about ten days. At the end of that time, if the condition is satisfactory, it can then be put on the breast, and the usual care of the new-born instituted.

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614 Medical Arts Building.

# THE UNDERWEIGHT CHILD\* F. A. HARRISON, A.B., M.D. ARDMORE

The problem of the underweight child confronts us most often between the years of one and ten. The greatest percentage is during the second year, then the third, fourth and fifth years respectively. The scale of growth during the first year is measured closely enough for practical purposes by the old rule: average birth-weight seven and one-half pounds, weight is doubled in five months, tripled in one year. The average breast-fed baby does this easily regardless of the unwise feeding procedures practiced all too often by mothers. In the artificially fed baby we have a far greater percentage of underweight children during the first year. Authorities agree that the chances of passing the first year are three times greater for the breast fed than the artificially fed baby in the poorer classes-where, of course, most babies are born these days. Artificially fed babies under the care of skilled pediatricians do as well as breast fed babies under the same care. The above takes into consideration all cases in the city and country where so many have no supervision other than the all-wise grandmother. We know also that Eagle brand milk and

<sup>\*</sup>Read before the Southern Oklahoma Medical Association, at Chickasha, April 18,

similar preparations are large factors in the mortality of artificially fed babies during the first and second years. They contain two most excellent food constituents in large proportions—carbohydrates and fats, but are almost entirely deficient in the strength-giving and building factor—protein. They produce the fat water-logged, deceptively healthy looking babies to the untrained, who are almost one hundred per cent rachitic and whose resistance is so low that the least little infection produces a mortality.

In considering increases in weight we must bear in mind that the weight curve is greatly modified by heredity, race and body type. There are also seasonal variations wherein the greatest increase is from August to December, a less increase from December to March; and during the months from March to August there may be no increase in weight in a perfectly normal healthy child. The seasonal variations have been attributed to sunlight, diet, and the appearance of the respiratory infections during the latter part of the winter. Growth in length occurs from birth until the twenty-fifth year and often continues while the patient is sick so that the patient gets taller while he gets lighter. The normal weight for height is very similar for all races. A variation of minus twelve to plus twenty may be allowed for older children, and minus ten to plus fifteen in infants without any justification for alarm, provided foci of infection and other causes relating to metabolism are ruled out. Following is the scale of Wood and Gray, taken from figures of a large number of normal children:

Entering the second year, weight 21 pounds; height 76 cm. or 30 inches.

Entering the third year, weight 27 pounds; height 85 cm. or  $33\frac{1}{2}$  inches.

Entering the fourth year, weight 32 pounds; height increased five to seven inches per year.

Entering the fifth year, weight 36 pounds.

After the fourth year the weight increase is about four pounds until ten years of age. Seventy-five per cent of children are seven per cent or more underweight between the ages of two and ten, and sixty-two per cent of children are ten per cent or more underweight during these ages according to the figures of Emerson.

Rupe in examining 3000 children in selected cases found 10 in 100 with optimum weight. Less than 50 per cent are underweight in the upper and middle classes. The difference in nutrition and general conditions were shown to those of us who examined children recently in different districts in Ardmore. In one ward in which there were children predominantly from the poorer classes, I found evidence of rickets, postural defects and underweight in 85 per cent of children from five to seven years of age. In the ward opposite composed of children from much more prosperous families these findings were present in less than 50 per cent. Some of the most important factors in this underweight may be listed:

- 1. Poor feeding during the second year especially, and during the third and fourth years.
- 2. Various infections, chiefly respiratory.
- 3. Unhygienic environment physical and mental.
- 4. Constipation and associated posture defects.

#### NUMBER ONE

So many families feel that after the first teeth are cut the child is ready to digest food on the table for adults. Eggs, gravies, meats—one to three times a day, greasy vegetables are piled into the little stomach to the exclusion of the great savior of childhood, milk, our most perfect food. All of us can remember the case of the six month-old child, presented in our senior year, who had thrived on adult food and was able to chin itself on the iron bar, at this tender age—just before it died of an infection easily overcome by a properly nourished child. From mild to pronounced forms of rickets can be demonstrated in these prize "Eagle Brand," "Malted Milk," "General Diet" infants in 95 per cent of the cases. This, as you know, shows in enlarged epiphyses, the well known rachitic beading, the rosary, or the Harrison's groove. Usually delayed dentition accompanies these conditions. They later succumb or are seriously invalided by the onset of the acute infections and respiratory diseases. If they survive the second year, the third and fourth are critical periods while the child's digestive tract strives to cope with the heavy and unsuitable diet. The struggle ensues until the natural time arrives for assimilation

of heavy foods. Then a few children begin to gain somewhat to make up for the valuable lost time. But too often it means a lifetime of poor digestion, chronic dyspeptics and delicate constitutions. Last year our colored maid warned us solemnly that we should likely have severe sickness in August in my own family — judging my 14-month-old boy by the experiences gleaned with poor feeding, universal among the colored, with its attending disastrous "second summer." This class is almost 100 per cent underweight. But all throughout the summer our boy gained steadily without loss of appetite, energy, or healthy vigor.

#### NUMBER TWO

Undoubtedly the most important factor for underweight is the onset of the acute infant diseases with masked and untreated complications and sequellae. Also the upper respiratory infections. Of these we may consider the ordinary acute colds or coryza. These are of two types,

- (a) The contagious epidemic diseases, and.
- (b) The non-epidemic colds due to lowered resistance of the mucous membrane.

Of the first and commonest variety the cause has been demonstrated as a non-filterable virus. This virus has been transplanted and found to produce typical "colds" without ordinary cocci at all involved; (b) the non-epidemic type is caused by the great increase in organisms due to lowered resistance from vessel constriction in m. membrane from chilling of any part of the body—especially feet. Immunity is not lasting from the virus types of colds. There is a great tendency to spread, causing otitis, virus infected bronchitis, and growth of adenoid tissue.

The incubation period is short, one to three days and treatment is unsatisfactory. Appetite is bad and the effects are lasting. Underweight children always result. In dispensary children, upper respiratory infections are present in 100 per cent of cases. And chronic tonsillitis is present in the vast majority of the classes so subject to upper respiratory infections. The most important causes of under-nutrition in children are chronic tonsillitis and chronic bronchitis. These are usually direct complications from acute colds. Lesser causes are nephritis, pyelitis, caries of the teeth and gum infections. The latter

is rare; caries is a much abused focus of infection occurring very rarely in my experience. But pyelitis is not an uncommon cause of under-nutrition and is so often unrecognized, being treated by the parents and sometimes the busy doctor for malaria or worms. I have been treating several cases of pyelitis which have been most obstinate in clearing, by using routine alkalies, methenamine and hexylresorcinol alternately.

I have under treatment one child of excellent parentage, who is a post-scarlatinal sufferer. The specimens sent to the doctors were reported negative for one year. At this time a diagnosis was made by an ear, nose and throat specialist in a nearby city, who refused to do tonsillectomy until the pus was cleared up. The tonsils were enlarged and not healthy in appearance. After preparing her as well as possible in which her urinary cell count was reduced to four white blood cells to the hi-power field after two minutes centrificalization and clotting time reduced from ten to four minutes. Tonsillectomy was done. An examination six weeks later showed the first pus free specimen of urine. However, she has had three attacks of pyelitis since; two following otitis media (mild) and one following a simple rhinitis. She has been cystoscoped twice with ureteral dilation and no particular anomalies found. Colon bacilli were obtained by culture of pelvic contents from both kidneys. A vaccine was not made, in as much as little or no results have attended the results of B. coli vaccines in such cases. She is gradually overcoming her weight loss and I believe will ultimately be a healthy child. But only because she has wonderful home environments and parents who use every cooperative measure with their doctor and the specialists.

I have treated two children not very long since, who were both greatly underweight and both subject to "fever" and "bilious attacks," the "spells" lasting from two to seven days and taking all the energy for many days. Both had had tonsillectomies, both had large fragments of tonsils left on one side. Both had chronic parenchymatous nephritis, untreated for years. "Bilious attacks" is such a bilious expression and I rarely pass a day without hearing it said of some child whose liver is probably the only unaffected organ in its entire body. I wonder when we can learn that liver complaints are for the pro-

verbial "fat females and forty" and the alchoholics—not for tender buds under six or eight, or two years of age.

Another striking case I had recently under observation, was a boy from a neighboring town. He was 12 years of age, 14 per cent underweight and rather precocious in his development. He had come up to a local ear, nose and throat specialist for a tonsillectomy. In the routine examination before giving an anesthetic I discovered an enlargement of the heart and four plus albumen with many casts and pus cells in the urine. The tonsils were extremely bad. He was put to bed and given a modified Carrell diet for one week during which time the daily output of albumen decreased from 25 grams to five grams. There was no decrease of the casts and pus in the urine. Another week in bed with a slight increase in the protein and carbohydrate content of the diet gave a clear specimen except for a few hyaline casts. He was allowed to sit up for increasing periods during the day, and three and onehalf weeks after the first visit he had a perfectly clear urine with a hemoglobin increased from 75 per cent to 85 per cent and the red count from 3,500,000 to 4,800,-000. The tonsillectomy was done under gas and ether, the rapid Sluder technique being used. He made an uneventful recovery and was allowed to go home on the fourth day. Ten days later the boy was brought back to my office following bad effects attending the over-zealousness of the parents in having him up too much. There was a trace of albumin in the urine, the heart was not enlarged, but the pulse 112, hemoglobin had dropped to 70 per cent with the red cells again 3,500,000. This boy was sent home and will be confined to bed until the time that he shows a continuous normal blood and urinary and pulse finding. Having removed the focus of infection his outlook is bright for the future but no active exercise will be allowed for several months. In the immediate pre-adolescent stage too much attention can not be given the underweight child and a great majority of the cases the focus of infection can be found, removed and the greatest preparation for the adolescent stage can be obtained. This boy had been under the constant care of a busy practitioner, with parents extremely cooperative, but unfortunately had been treated only symtomatically. His gross pathology had been missed.

#### NUMBER THREE

Unhygienic environment plays an important part in the undernourished child. The physical side is accentuated in the poorer classes, giving the child a poor start in life. But especially in the cities and larger towns, and certainly here the "mental" side is important. Dorothy Canfield portrayed in a masterly fashion the change from a frail, weakly, nervous child to the opposite type in her book "Understood Betsv." The first care was given over to a wealthy spinster aunt, who devoured all books and literature pertaining to "How to raise your Baby," with most disastrous results to the victim child. Conditions were changed simply by force of circumstances, placing the child in the hands of a human, friendly, sensible woman, who did not regard Betsy as an absorbing experiment, but simply as another little human being who should think and act for herself. How we inwardly quake, and sympathize with the slender, nervous "scientifically raised" child, whose mother greets us with quotations from Holt and "the baby specialist at Chicago, or Dallas or what not." We have an unnatural condition to deal with demanding a sane, simple human treatment of the child as a child and not a laboratory for scientific study of human ailments. When I hear a mother tell me how delicate and nervous Virginia is (loudly before Virginia, who is proud to be so distinguished and nervous) I want to say with the doughboy back from France, when listening to his garrulous companions, "Aw, Hell!" But it is a factor, and chiefly in our best homes.

#### NUMBER FOUR

Rather as a combination of one or all of the above we have the last factor to be considered: Constipation and faulty posture. I found two correct postures out of all the children I examined in N. E. Ardmore, and only four in S. W., with really correct positions of standing. Practically all of these gave a history of constipation and poor appetites. I have under treatment now at least twelve children between the ages of two and six for constipation. The etiology is simple:

Of first importance is diet. Ingestion of foods insufficient in ash or not procuring proper bulk for the intestines are the chief factors. The bad habit of eating between meals also prevents proper rest for stomach or intestines with resultant intestinal disorders and constipation. The ice

cream cone, soft drinks and candy are factors of importance. Second: Mechanical causes, chief of which is faulty posture with the well-known lumbar lordosis, flat chest, winged scapulae and protuberant abdomen. This tends greatly to constipation with resultant under-nutrition. A third important factor is habit formation where the child is not taught to have stools at a regular time. This is an important factor, in the cities especially. The grand rush attending late sleeping hours, a hasty breakfast and away to school, leaves little time for proper bowel action. Lastly, drugs. And how often we find chronic drug addicts to the infamous Syrup of Pepsin and Syrup of Figs, or Castoria at the tender age of two, three and four years. They contain the most habit forming cathartics under a "natural" sounding

name that achieves the purpose for which designated—namely, a heavy sale through out the country, and leaves an abnormal, constipated drug addict of three or four years.

Most of these postural defects can be overcome by energetic and systematic exercise in connection with the general upbuilding of the child's health. A few will require the services of an expert, and these few I always refer to orthopedic surgeons. One little child in particular, of six years of age, received a very marked benefit from a brace cleverly constructed to support hips, abdomen and shoulders. The entire construction weighing only a few ounces. This child took her exercise regularly and one year's attention altered her entire figure and standing posture, also completely cured her constipation.

#### Height-Weight-Age Table from Birth to School Age

Prepared by Robert M. Woodbury, Ph. D., Children's Bureau, U. S. Department of Labor

BOYS												
Height (inches)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20 21 22 23 24 25 26 27 28 30 31 33 34 43 44 45 46 47 48 49	8 9 10 11 12 13		13 14 15 17 18 19 20 22 		18 19 20 21 22 23 24 26						32 34 35 36 38 39 41 43 45	36 38 39 41 43 45 45 50 52 55

GIRLS												
Height (inches)	1 mo.	3 mos.	6 mos.	9 тоѕ.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20 21 22 22 23 24 25 26 27 28 30 31 32 33 34 40 41 42 43 44 45 46 47 48	8 9 10 11 11 12 13 13	10 11 12 13 14 15 16	13 14 15 16 17 19 21	14 15 17 18 19 20 21 22 			21 23 24 25 26 29 30 31		255 266 277 299 301 331 333 344 355	29 30 31 33 34 36 37 39 40	31 32 33 34 36 37 39 41 42	34 36 37 39 41 45 47 50 52

#### SCIENTIFIC ACHIEVEMENTS OF THE ARMY MEDICAL CORPS\*

R. E. Scott, M.D., F.A.C.P. Major, Medical Corps, U. S. Army, Station Hospital, FORT SAM HOUSTON, TEXAS

Military surgeons have, since early history, played an important role in the advancement of medical science.

Among these may be mentioned Dios-

\*Prepared for the 37th. Annual Session, Section on General Medicine, Oklahoma State Medical As-sociation, Oklahoma City, May 27-29, 1929.

von Helmholtz, Krebs, Gaffky, von Esmarch, von Behring, of the German Army; and Pirogoff of the Russian Army. The names Pare, Laennec, Larry, and Laveran are familiar to all medical men; they contributed valuable work while members of the French Military forces. The military surgeons of the armies of

corides, a Roman Army surgeon during the reign of Nero; Saliceto, an Italian

Army surgeon; Heinrich von Pholespeundt, of the Bavarian Army; Langenbeck,

Great Britain and her possessions have contributed a long line of brilliant achievements that have added to our store of knowledge; among these may be mentioned William Clowes, Peter Lowe, John Hunter, Sir John Pringle, James Lind, and, in more recent times, Leonard Rogers, Bentley, James, Christophers, Sirs Ronald Ross, Almroth Wright, David Bruce and William Leishman.

The medical corps of our own army can point with pride to its part in the advancement of medical science. Serving, as it does, in all sections of the United States and its possessions, during our various martial conflicts at home and in foreign countries, and with the field of preventive medicine constantly in mind, a stimulus has been present to encourage its members in the advancement of medicine.

"An introduction to the History of Medicine," by Lieut. Colonel Fielding Garrison of our corps, is one of the most thorough works on medical history by any English writer, and, from it, I have obtained most of the data presented herewith.

The records regarding our corps are not very complete prior to the Civil War. We know, however, that the first three Surgeons General of our army, Morgan, Shippen and Rush, all served in the Revolutionary War, and, at the time, were the most celebrated physicians in America. Benjamin Rush was an outstanding man, He was noted for his contributions to anthropology and insanity, his works being the first of their kind in America. John Hunter, a medical officer during the Revolution, contributed the first work upon surgery published in this country. General Hammond established the Army Medical Museum in Washington, that is now such a wonderful store of knowledge for the entire medical profession, and made valuable contributions on physiology and nervous diseases.

William Beaumont, (1785-1853) an officer of our corps, gave medical science its first definite knowledge regarding the physiology of digestion. While on duty at a frontier station in Michigan, a Canadian by the name of Alexis Saint Martin, was accidentally wounded in the abdomen. Beaumont cared for him, and after the wound healed a gastric fistula developed, through which Beaumont was able to study gastric digestion and the movements of the stomach. He accurately described the secretion of the gastric juice, the effect of the juice upon various foods, and the phenomena of inflammation of the

stomach. His observations were published and the work became a classic.

Surgeons George A. Otis, Joseph J. Woodward, Charles Smart, and David L. Huntington prepared "The Medical and Surgical History of the War of the Rebellion" which was considered the greatest contribution to medicine and surgery of its time. Woodward was the pioneer of photo-micography in America and a leading pathologist; Otis, a surgeon whose operations upon the head of the femur and amputation at the hip joint were considered classical.

John Shaw Billings, (1838-1913) of our corps, created the Surgeon General's Library, which is now the second largest medical library in the world. He also originated the Index Medicus, covering the entire field of medicine. He was America's leading sanitarian and his work on ventilation is classical. After his retirement, he organized the New York City Public Library, certainly one of the greatest institutions of its kind in the world.

George M. Sternberg was the pioneer bacteriologist of America. He founded the Army Medical school in Washington and was Surgeon General of the Army from 1893 to 1902. His text book of bacteriology was standard throughout the country. He also wrote books on malaria and immunity. He discovered the pneumococcus and did the first work on the gonococcus in this country. It was he who exploded many of the fallacies as to the cause of yellow fever and made possible the work of the Yellow Fever Board, which he later appointed.

The work of Reed, Carroll, Lazear, and Agramonte, members of the Yellow Fever Board, is well known to every medical man throughout the universe. This Board proved the transmission of the disease by the mosquito, and an application of this knowledge by General, (then Major) Gorgas, and his associates, made the building of the Panama Canal possible, and has kept the Canal Zone free of the disease since 1905. General Gorgas later was Surgeon General of the Army.

General Farwood, Surgeon General directly after the Spanish-American War, was an authority on military surgery. He developed a special bullet probe and forceps that were used extensively.

To Colonel Russell, formerly of our corps, should be credited one of the out-

standing contributions to medical science. He demonstrated the protective value of typhoid vaccination, originated the technique of its preparation in this country, and was instrumental in making this a compulsory procedure in our army. His work has practically eliminated typhoid fever from our Army, a disease that had always played havoc in armies until the World War.

General Woodhull was the first to introduce the Anglo-Indian use of ipecac in the treatment of amoebic dysentery in this country. Colonel LaGarde was considered a national authority on gunshot wounds, and prepared a text book on the subject. Colonel Bushnell, a recognized authority on tuberculosis, contributed much work on this subject. Interest in helio-theraphy and medical ethnology was awakened by the studies of the effect of tropical light on blond races, by Lieutenant-Colonel Woodruff.

The late Lieutenant-Colonel Henry J. Nichols contributed much data upon "typhoid carrier" and prepared a text "Carriers of Infectious Diseases." His work with Lieutenant-Colonel Reasoner on the "Nervous Strain" of treponemae was very exhaustive.

To Colonel Ashford, formerly of our corps, we owe much of our present knowledge as to the cause of anaemia in the tropics. His work in Porto Rico on sprue and hook-worm infestation has done much to bring that country up to its present state of efficiency from a physical standpoint.

So far I have told of work accomplished by members of our corps that have served in the past. I will speak of some of the accomplishments of members who are still in active service.

Colonel W. L. Keller has contributed important knowledge in the field of surgery, especially of conditions within the chest. His vast experience with empyema following the World War, and his many stage operations in this condition has been an outstanding work. Major N. T. Kirk, in orthopedic surgery, especially amputations and bone grafts, has done much of benefit in changing former ideas and methods in this particular branch.

In the field of general and preventive medicine, we must think of outstanding men who are devoting their lives to the advancement of medical science. Colonels Craig, Siler, and Vedder, of our laboratory division, have contributed valuable work on malaria, amoebic dysentery, the demonstration of the filterable virus of dengue fever, its presence in the blood, and its transmission by a particular type of mosquito, beri-beri, etc.

The first work on Malta fever and the detection of its endemic presence in the Southwest was done by Ferenbaugh and Gentry of our corps.

The sterilization of water supplies by means of chlorine was very early applied by members of our corps and the present method in use for our troops in the field is by means of the Lyster Bag, devised by Colonel W. J. L. Lyster. Sanitary chemistry is a field assuming more and more importance from a military standpoint, and several of our members are at present devoting much attention along this line.

Aviation medicine is a recent branch of medical science, and many of our corps are now devoting their daily endeavors to this branch. We maintain a special school for teaching this subject, at Brooks Field, Texas, where new knowledge is constantly being added to our store.

New methods for the handling of the wounded and diseased in time of war are being originated at our Field Service School at Carlisle Barracks, Pennsylvania; and research problems in bacteriology, serum therapy, immunology, sanitary chemistry, etc., are being conducted in our Army Medical School in Washington, and by our Medical Department Research Board in Manila. Our pathological department is building up an exhibit at the Army Medical Museum in Washington, that is second to none in the world.

In the field of gas warfare, and the study of gas, both the toxic and non-toxic varieties, much is being accomplished in the laboratories at Edgewood Arsenal, Maryland.

Let us not forget to mention a contribution to medical science recently completed, "The Medical History of the World War," which represents the untiring efforts of several members of our corps over a period of several years, and without doubt, will receive the same praise as that occasioned by the Medical History of our Civil War.

New articles of equipment for medical, surgical, X-ray, and clinical laboratory work are being devised from time to time,

especially in the clinical laboratory field; and many standard articles in use in large laboratories throughout the country bear the notation "Army Medical School Model."

Time does not permit in this brief paper, the going into more detail regarding the scientific contributions by members of the Army Medical Corps, From the data presented, it suffices to say that we of the corps have a standard to maintain that has been set by our predecessors, and, with an *esprit de corps* that has been maintained throughout our entire existence, it is believed that many more valuable contributions will be made along the line of scientific achievements in medicine.

#### A COMPLEMENT FIXATION TEST FOR PELLAGRAP

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Pellagra like syphilis is a most protean disease. Like syphilis also its origin is supposed to have been traced to the shores of America, from whence it is believed to have spread to the older civilizations of Europe, Asia and Africa and the islands of the seas. The history of this dread malady appears to be inseparably linked with that of maize or Indian corn. That pellagra is in some maner caused by the consumption of corn was the first theory advanced to account for the appearance of the scourge in Europe, and around this theory have centered the majority of the verbal, and sometimes acrimonious, conflicts that have been waged ever since by many students of the disease in many different lands.

Baruino, in 1600, described a disease existing among American Indians which may have been pellagra, and shortly afterwards Scipione described a similar malady. Both attributed the disease to corn, an important item in the diet of the American savage. About the same time a similar disease was observed among domestic animals that were fed spoilt corn.

It is a singular coincidence that the first scientific observations on pellagra in Europe were made by Gaspar Casal in 1755, shortly after maize imported from America had become a staple article of food in those provinces of Spain in which the malady was discovered. He named the disease Mal de la Rosa and in his published account of it he described "a peculiar kind of disease consisting of a combination of scurvy and leprosy". Antonio Pujati described the disease in 1755 after having visited Casal, and Adoardi gave to a similar disease which he observed in Northern Italy the name Alpine scurvy. The name "pelagra" was given this same malady by F. Frapolli of Milan and with a slight alteration in spelling, the term has been incorporated into the scientific literature of the world.

Subsequently, pellagra was recognized in many parts of Italy and in Roumania, Servia, Bulgaria, Austria, Hungary, Asia Minor and in Egypt. By 1856, the disease had increased in Lombardy to such an extent that 38,777 cases were found there. Commissions were appointed to study the scourge and even a pellagra asylum was established in which to treat victims of the malady. Dissensions arose as to the cause of pellagra, and while scientists and public officials quarreled over their theories as to its etiology, the disease increased with amazing rapidity until the high-water mark appears to have been reached in Italy between 1871 and 1884, during which time 104,067 cases of pellagra were reported in Italy alone.

In America, sporadic cases of pellagra were reported in New York and in Massachusetts as early as 1863, but the disease was not generally recognized until about 1907, when reports of cases began to appear independently from various Southern States. The disease had undoubtedly existed for many years in the South, but was not recognized as pellagra. In November, 1909, a conference on pellagra was held at Columbia, South Carolina, under the auspices of the South Carolina Board of Health. Since then the disease has been studied by various governmental commissions and by many independent investigators, both in this country and abroad. Champions of diverse theories as to the etiology of pellagra have appeared from time to time.

As early as 1839, Ballardino had demonstrated "beyond a peradventure" that the disease was due to the ingestion of damaged maize. He has been succeeded by many disciples and many dissenters. Pellagra has variously been held to be due to an aspergillus that grows on spoilt corn, to various bacilli from the same origin, to

<sup>\*</sup>From Terrell's Laboratories, Fort Worth, Texas. Read before the Section on Pathology, State Medical Association of Texas, May 9, 1928. Published in the Texas State Journal of Medicine, July, 1928. Republished by permission. Read before Tulsa County Medical Society, October 22, 1928.

chemical poisons produced by fungi and bacilli, to the alleged fact that corn lacks proper nutritive value, to a diet lacking in certain vitamins, to intestinal parasites, especially the trichomonas hominis, to some parasite transmitted by simulium (the buffalo gnat), to drinking water containing colloidal silica, to some protozoon like the treponema pallidum of syphilis or the trypanosome of African sleeping sickness. But despite the many theories advanced and the painstaking research and laborious experiments of the best minds of the medical world and of scientists from related fields, the etiology of pellagra is vet to be discovered.

It is not within the scope of this paper to discuss in detail the many theories that have been advanced as the causative factors in pellagra. At the present time, most of the profession, in the United States at least, may be divided into two groups: those who believe that pellagra is due to a vitamin deficiency or some inadequate dietary, and those who believe that it is due to an infectious agent of some type. Those who oppose the vitamin deficiency theory do not accept the conclusions of Goldberger and his associates. Dr. Seale Harris in an address before the Southern Medical Association at New Orleans in 1920, offered several very pertinent objections to the methods adopted by Goldberger in his feeding experiments and these objections are concurred in by most of the physicians living in the communities in which these experiments were conducted. Briefly stated they are: first, the experiments were conducted upon long term convicts in communities in which pellagra was known to be endemic; second, the monstrous diet given these convicts over a long period of time was calculated to make even the most hardy ill and might be expected to produce scurvy in some cases; third, it is doubtful whether any of the six convicts who developed any symptoms even resembling pellagra really had the disease, as the findings were exceedingly meager.

In support of the theory that pellagra is due to an infectious agent are: first, its peculiar geographical distribution, being confined with rare exceptions to subtropical climates; second, the fact that in numerous instances epidemics of pellagra can be traced to one or two known pellagrins; third, the history of the spread of the disease is similar to the spread of other chronic infectious diseases; fourth, the remissions and exacerbations characteristic

of most cases of pellagra are suggestive of parasitic disease; and fifth, arsenic has for many years been held to be almost a specific in pellagra as it is in other protozoon diseases such as syphilis and trypanosomiasis. To these we wish to add a sixth argument in favor of the parasitic theory, and this is that in untreated cases of pellagra the blood serum will give a complete fixation reaction.

It was after having repeatedly observed in blood cultures made on pellagrins spirillum-like bodies that we decided to attempt the preparation of an antigen with which to set up a complement fixation test for pellagra. The only mention in the literature of such a reaction being attempted in the diagnosis of pellagra that we have been able to find is the experiment of Lavinder. It seems, however, that his antigen was prepared from spoilt maize and not from blood cultures. Our blood cultures were made on a modified Hasting's egg media and the flasks were then exhausted of air and sealed. A grayish precipitate indicating a growth of some character could be noticed in the flask after some days. Spirillum-like bodies could be seen in this material with the dark field microscope, but these are believed to be due to the disintegration of the erythrocytes. In two different blood cultures taken on one patient, however, a spirillum was isolated and these cultures were kept alive for many months. One of these cultures was submitted to Dr. Hideyo Noguchi who kindly consented to give us his opinion on the type of organism we had isolated. He said in part, "The morphology of the organism does not suggest that of a spirochete, and I think there is no doubt that it is a spirillum". After the growth seemed to be fairly abundant, the culture was desiccated and part of it was extracted with ethyl alcohol and part of it with methyl alcohol. This alcohol soluble antigen was then titrated just as in the preparation of other specific antigens.

The complement fixation test is set up, following the Kolmer technic for the Wassermann reaction, the only difference being that pellagra antigen is used.

The Wassermann test is always run parallel with the blood to be tested for pellagra as, just in the complement fixation test for tuberculosis, a serum giving a strongly positive Wassermann reaction will also give a positive pellagra fixation test; one or two exceptions to this have

been noted, but they are so rare as to be neglible.

The blood serum of healthy individuals in whom no evidence of pellagra could be found gave perfectly negative reactions. A number of our colleagues were very considerate in furnishing blood from pellagrins for testing with the complement fixation reaction and it was found that the results obtained checked quite closely with the clinical findings. Some negative reactions were obtained in patients who were very manifestly pellagrins clinically, but in every instance it was found that arsenic (usually in the form of sodium cacodylate) had been administered for some time before the blood was obtained for the complement fixation test.

In one instance a four plus positive test for pellagra was obtained in a patient who was apparently in good general physical condition, except for some suspicious nervous manifestations. The physician in charge of this case stated frankly that he thought we had gotten a false positive in this patient. Much to the surprise of everyone, however, in a few brief weeks the patient suddenly began to lose weight and developed a profuse diarrhea and soon bloomed out with a typical pellagrous eruption and died in a short time, a fulminating case of pellagra with the toxic psychosis often accompanying such acute cases.

In a series of over three hundred cases in which blood was sent in for the Wassermann test, a pellagra fixation test was also run. In two hundred and eleven of these cases both tests were negative; in seventynine cases both tests were positive; in seven cases the Wassermann test was negative and the pellagra test positive, and in five the Wasserman reaction was positive and that for pellagra negative. Of the seven cases in which the Wassermann reaction was negative but the pellagra fixation test was positive, we have been able to secure clinical data in only four. The patients in two of these cases had been treated over a long period for syphilis and positive Wassermann reactions had been obtained several years previously. In the other two cases the patients were eventually diagnosed as pellagrins, and the physicians in charge of these cases did not even know that pellagra fixation tests had been run on the blood submitted for the Wassermann reaction.

In another series of cases, sera from 181 patients who had some symptoms

suggestive of pellagra were run with the following findings: sixty-two were negative to both the Wassermann and the pellagra fixation tests; one hundred and six gave positive pellagra tests and negative Wassermanns; while thirteen patients had positive Wassermann and pellagra fixation tests. We have obtained the case histories of most of these patients and find that in all cases in which positive pellagra and negative Wassermann tests were obtained the patients presented clinical evidence of pellagra (although in some instances not very marked), and most of them were undoubtedly pellagrins. .Negative reactions were obtained in some few cases that were clinically pellagra, but in every such instance the patient had taken arsenicals over a long period of time before the blood was submitted for the fixation

From a study of these two series of cases, totalling about five hundred, we consider that we are justified in the belief that in the pellagra complement fixation test we have a valuable laboratory aid in the diagnosis of pellagra, and that it is a specific serum reaction for pellagra which is nearly if not quite as valuable as the complement fixation reaction for syphilis. The following brief case reports are selected from the cases just tabulated and are typical examples of the entire series.

#### CASE REPORTS

Case No. 1.—H. P., aged 7 years, white, was seen by us first May 15, 1925. Four years previously, he began to have an eruption on the hands and face, which finally involved the feet also and finally the elbows and knees. Constipation and diarrhea had alternated for some time, he having had a long attack of diarrhea three weeks prior to his visit to the Laboratories. His skin was rather dry over the entire body, but over exposed parts it had a reddish, beefy appearance, that over the hands and feet being badly cracked and fissured. The mucous membranes of the mouth were pale except the tongue was red and ulcerated. The blood Wassermann and tuberculosis fixation tests were both negative. The pellagra fixation test was four plus positive. The blood count was as follows: Reds, 4,300,000; Hemoglobin 80 per cent; Whites, 17,200; the differential leucocyte count: Polys 77, Small Lymphos 18, and Large Lymphos 5. The stool contained large numbers of trichomonas intestinalis and some blood. The urine was negative except for a trace of albumin.

Case No. 2.—Mrs. B. B., aged 42 years, white, dated her illness from August, 1926, when she bagan to have gastric disturbances and grew very nervous. Her mouth became sore and she began to have diarrhea and soon a rough, scaly eruption appeared on her hands, elbows and feet. She had lost considerable weight. She was markedly emaciated and there was a scaly red brown eruption over the backs of her hands and wrists and over the elbows, and her ankles and feet. Her tongue was red and beefy and so were the mucous membranes of her mouth. There was a tremor of her head and also her hands. Her mentality was considerably below par, and she was very emotional, crying easily. Clinical diagnosis pellagra. The blood Wassermann was negative and the pellagra fixation test four plus positive.

Case No. 3—Miss L. C., aged 15 years, had for two years been observed to be "off mentally" at intervals. Her appetite was at first variable, but finally she stopped eating and had to be forcibly fed. She lost weight and developed diarrhea. Her mouth was sore and red and there was a brownish red, scaly eruption over her hands and feet. Clinical diagnosis pellagra. The blood Wassermann was negative and the pellagra fixation test negative. This patient had had sodium cacodylate for many months prior to the taking of the blood for the fixation test, which undoubtedly accounts for the negative reaction obtained in her case.

Case No. 4.—Mrs. S. W. T., aged 52 years, had had obscure nervous symptoms and indigestion for two years prior to entering a sanitarium in July, 1925. At this time she had the typical "glove hand" eruption of pellagra and also a scaly, pigmented eruption over the neck, the pellagrin's "rosary". Her mouth was red and sore and her tongue beefy and fiery red. She was quite emaciated and had occasional severe attacks of diarrhea. She complained of headaches and seemed to be suffering from a confused mental state. Her appetite was poor and she slept poorly, requiring opiates. The blood Wassermann was negative and the pellagra fixation test four plus positive.

Case No. 5.—Mrs. M. J., white, aged 30 years, entered a sanitarium in October, 1927, complaining of nervousness, insomnia, weakness, headaches and nausea. She was despondent and somewhat hysterical. She complained of pain in her epigastrium and vomited at times. Her tongue was a

beefy red and she had diarrhea alternating with constipation. She appeared to have lost some weight. She had no skin eruption, but there was a very bad odor to both the sweat and urine. There was no vaginal discharge. Clinical diagnosis pellagra. The blood Wassermann was negative and the pellagra fixation test four plus positive.

Case No. 6.—Mrs. I. N. P., 59 years old, had been unusually robust and healthy all her life until about three months prior to being seen in December, 1927, when she became very nervous and soon developed a morbid and persistent diarrhea. This was followed by a scaly, brownish red eruption over the backs of the hands and wrists and on the vulva. She became very much depressed and showed mental deterioration. Her tongue was fiery red. She finally passed into a comatose state in which she died. The blood Wassermann was negative and the pellagra fixation test four plus positive. The clinical diagnosis was acute pellagra.

Case No. 7.—W. L. C., 55 years of age, had lost 30 pounds in weight in the past three years. He had no appetite and was very much depressed, worried a great deal and suffered from insomnia. His tongue and mouth felt raw at times and his feet burned. He had a good bit of trouble with "gas on his stomach" and belched considerably. His skin was dry and scaly but there was no distinct dermatitis. However his tongue was fiery red, and with the mental symptoms and gastric disturbances suggested pellagra. The pellagra complement fixation test was four plus positive and the Wassermann was negative. The case is being treated as one of pellagra and is responding well to treatment.

Case No. 8.—Miss B. N., 37 years old, complained of burning and tingling of both hands and feet and was very nervous. She had a profuse diarrhea and her tongue was quite red. Her hands and feet were somewhat pigmented but there was no dermatitis. The pellagra fixation test was four plus positive and the blood Wassermann was negative. The clinical diagnosis was pellagra and as such the case is being treated with fair results.

Case No. 9.—Miss O. G., had lived in poverty most of her life and fresh vegatables and meats seldom form a part of her diet. In August, 1927, she first noticed that her skin was growing rough and scaly, especially over the neck, face and hands. Her mouth became sore and she be-

gan having burning pains in the vagina. In January, 1928, her neck, face and hands became acutely inflamed and her general condition much worse. She did not have any diarrhea and appeared to be fairly well nourished. There was an inflamed, pigmented eruption of a purplish-red color over her cheeks, the bridge of her nose, her neck and hands. The skin over the forarms and legs was also pigmented but not inflamed. The pellagra fixation test was four plus positive and the Wassermann was negative. The clinical diagnosis was pellagra.

Case No. 10.—L. L. D., 30 years of age, was a laborer and had been in good health until five or six years ago, when he began having headaches and sleeping poorly. He lost his appetite and began losing weight. He became very nervous and developed a morbid fear, as of some impending danger. He has attacks of diarrhea and constipation alternating. He has become very weak and unable to work. The pellagra fixation test in this case was four plus positive and the blood Wassermann was negative The patient is being treated as a pellagrin.

Case No. 11.—W. H. M., 50 years of age, had had "stomach trouble" for ten years. He would have diarrhea and constipation alternately, and was very nervous so that he could not work at his profession as real estate dealer. He had no skin eruption but his tongue was quite foul. The pellagra fixation test was four plus positive and the Wassermann negative. The clinical diagnosis in this case was pellagra.

Case No. 12.—Mrs. L.W.C., 31 years of age, is married and is the mother of one child. For the past two years she had menstruated irregularly and was nervous and mentally distressed. Her family think "her mind is affected". She is very emotional and cries easily. She is usually constipated. The patient is thin and somewhat emaciated. She is very nervous and apprehensive. Her tongue is rather red but there is no skin eruption. The pellagra fixation test was positive and the Wassermann negative. The clinical diagnosis was pellagra.

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# THE MALARIAL TREATMENT OF GENERAL PARALYSIS\*

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Some four hundred years ago, Benvenuto Cellini, the eminent Goldsmith of the Renaissance period, tells quite candidly in his autobiography of his relation with Roman prostitutes, and frankly describes how he developed symptoms of a disease that cannot be mistaken as syphilis. He later tells how he came down with chills and fever, and declares that when he recovered from the fever the symptoms of his earlier malady had disappeared. Thus, we have the first recorded history of the treatment of neuro-syphilis with malaria.

During all the intervening years the treatment of syphilis has been along specific lines, with mercury and the iodides holding the lead. With the introduction of the arsenical preparations in 1910, by Ehrlech, a great forward step was taken in the treatment of syphilis of the central nervous system, especially, in the more acute cases and in the interstitial form where the spirochetes may be reached through the blood stream and be destroyed by direct action of the various arsenical preparations.

In the parenchymatous variety—that is general paralysis and tabes—the spirochetes become so deeply imbedded in the nervous tissue, which has such strong natural barriers to protect them from harmful agents, that it also protects the spirochetes from drugs introduced in the blood stream or spinal canal. Even in these cases some good results have been recorded. The physical condition of the patients improve, longer remissions are recorded and the average longevity of the patient is noted; but our death rate was little affected.

The non-specific treatment of neurosyphilis was developed in the clinic of the

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noted Vienna psychiatrist, Wagner-Jauregg. In his study of general paralysis he noted improvement in those cases that were ill with some febrile disease, such as typhus fever, pneumonia, erysipelas or typhoid fever. This caused Wagner to begin his experiments with Koch's tuberculin, typhoid vaccine, staphylococcus vaccine and various foreign proteins that would cause a rise in temperature. He found the cases so treated showed more improvement and had longer remissions than cases treated by specific methods. Not satisfied with the results obtained in the above, in 1917, he inoculated his first patients with tertian malaria. Since then the malarial treatment of general paralysis has been used extensively in the clinics and hospitals of Europe and America, and most favorable reports have been made in several thousand cases.

The malarial treatment of general paralysis is strictly empirical. Several theories have been advanced as to the action of the inoculation. Some investigators claim the high temperatures inhibits the growth or reduces the resistance of the spirochetes to therapeutic methods; again, it is maintained that the paroxysmal character of the disease—that is, the shock from chills—may have some special virtue not found in a continuous temperature. Another theory, and the one I think most reasonable, is that the malaria in some unknown way produces an immunity by the forming of antibodies in the blood to such a degree that the spirochetes are destroyed or their growth greatly inhibited. Other investigators believe the inoculation from malaria causes a great impoverishment of the blood which is followed by an active regeneration process that develops an immunity.

In injecting the malaria it may be given either intravenously or subcutaneously, most investigators prefer the latter. About 5cc. of blood is taken directly from the vein of the donor and injected in the arm, breast or scapular region of the patient. The injection is made deep into the tissue and the needle is moved in various directions from the point of the puncture to assure the transmission of the largest number of malarial germs. As the blood is infected at all times the stage of temperature of the donor matters little but it might be well to take the blood a short while after the initial chill.

The average time of incubation is seven

to fourteen days, although, some cases will go twenty-one days, and frequently, cases will begin in five to six days. It is not uncommon for the inoculated patient to run a low grade temperature for several days before the initial chill. Although the tertian strain is used, the malaria does not always run the clinical course of the natural malaria. Most cases will have their chill every other day for two or three paroxysms when we see a change in the type, most frequently changing to the quotidian. In others the periodicity is quite irregular.

The patient should be allowed to have from twelve to fifteen chills with temperature ranging from 103 degrees to 106 degrees, or higher. Of course, the number of paroxysms that the patient is allowed to have will depend upon his physical endurance. Some patients will have only a few chills and be in a state of collapse and the malaria will have to be interrupted, but the majority will have the series without any difficulty.

We have few contra-indications for the use of malaria. Patients in the terminal stages of the disease should not be inoculated, also, patients suffering from heart or kidney complications. The lungs should be examined as a latent tuberculosis is likely to be lighted up by the malaria. Very obese patients should not be treated as sudden collapse is likely to occur. Very few complications occur during the course of the infection. A few cases of rupture of the spleen have occurred, jaundice, vomiting and diarrhea, herpes and paretic convulsions have been noted. In the latter the patients may die or it may be necessary to terminate the malaria, or, with small doses of quinine diminish its intensity.

A very interesting phenomenon of artificial inoculated malaria is the fact that it is exceedingly sensitive to quinine. We all know of the resistance of natural malaria to quinine and the large amount needed in many cases to eradicate it from the blood stream, but such is not the case in the artificial inoculation. Very small doses, in fact, in many cases, a five grain dose will terminate the chills and ten grains per day for three days will cause the fever to cease.

The question is often raised as to the danger of the transmission of malaria from the infected patient to others in the hospital. Several investigators have ex-

perimented on this line and the concensus of opinion is that after the blood has passed from three or four patients the gametocytes disappear from the blood and the malarial parasite no longer has an opportunity to complete the sexual phase of its life cycle in the mosquito and the parasite can only reproduce in the non-sexual form.

In experiments carried out to test the transmission of artificial malaria, mosquitoes were allowed to bite eleven patients infected with artificial malaria for 150 times, and after thirteen days to bite six patients free from malaria for 127 times. No malaria developed in any of the patients. However, when these same patients were infected with malarial blood they all developed a typical malaria. These same mosquitoes when examined microscopically, no sexual forms of the malarial parasite were found in their intestinal tracts and no sporocytes were found in the salivary glands of the mosquitoes. The conclusion was reached that it is perfectly safe to carry out the inoculation of patients with malaria even in localities where the anopheles mosquitoes abound.

The results from the treatment of general paralysis by malaria have been fairly uniform. In about 25% to 30% of the cases we can expect a complete remission and the patient will be able to return to work. Another 15% will show marked improvement and the ravage of the disease will be checked. In another 10% we will have some improvement and the patients will be able to care for themselves better and their conduct in the hospital will be changed from a disturbed, destructive and untidy patient to that of a quiet, obedient one. Five per cent of the patients will die either from inoculation of the malaria or from other diseases while undergoing treatment, leaving about 35 or 40% in which the treatment does not affect. These percentages apply to institutional cases and I believe if it is applied to earlier cases the percentage of arrests and improvements will be much higher.

It is interesting to note that of the nine patients first treated in the Vienna Clinic in 1917, four of these patients are alive to-day and carrying on their usual work. Two cases only showed slight improvement; another committed suicide while in a melancholy state a short while after the inoculation, one died in a paretic convulsion

during treatment and the ninth had a long delayed remission and many months after treatment was able to do manual labor.

Kirschbaum reported 196 cases in which he had 31% complete remissions, and 21% much improved, 11% slightly improved, 23% unimproved and 17% died. Kirby, of the New York State Psychiatric Institute, reports 141 cases treated with complete remissions in 32%, greatly improved in 14%, slightly improved in 10%, unimproved 25% and died 19%. Gesteman reports 294 cases with 38% showing complete remissions, 31% much improved and 31% not improved. Lewis, reporting 51 cases treated at Saint Elizabeth's Hospital, Washington, D. C., states 31% showed complete remissions. Green, of the Buffalo, N. Y., State Hospital, in a series of 93 cases, reports 26% with complete remission, 12% greatly improved and 22% slightly improved.

In the Eastern Oklahoma Hospital, we have inoculated 45 patients, of that number five are of recent date and will not be taken into the statistics. Of the other forty, eleven or 27% show complete remission, eight or 20% greatly improved, eleven or 27% slightly improved, ten or 25% not improved, which gives us a per cent of 74 that have been benefited by the malarial treatment.

In complete remissions we placed the patients that we feel are normal mentally and are able to return to their homes and sustain themselves at as high a social level as before the onset of the psychosis. The greatly improved, most of the mental symptoms have subsided and the patient is able to be cared for in his home and he is capable of labor but usually at a lower economical level than before the outbreak. In the slightly improved there is a diminution of the symptoms but the patients still require hospital supervision.

It is interesting to note the serology of cases of general paralysis treated with malaria. In about 50% we have some improvement, although, in some of the arrested cases we find no change either in the blood or spinal fluid. In the majority of cases the serological changes take place very slowly and the complete change may not take place for many months after the treatment is completed. The cell count is the first to react and in most instances there is a reduction immediately. The spinal fluid Wassermann is the most stubborn

and in only about 25% of cases is it reduced to negative. The colloidal gold curve rarely becomes negative but is often reduced from a paretic to a luetic curve.

I believe all cases should be followed up with an intensive course of sulpharsphenamine or tryparsamide for many months. If so carried out we will note a still further improvement in the serology and a larger percent of negative spinal fluids. We will also note improvement in the mental condition of many of the cases that have shown some improvement from the malaria.

With an early diagnosis of spyhilis of the central nervous system and the inoculation of the patient with tertian malaria, to be followed by intensive treatment of the arsenical preparations, we may expect a higher percentage of complete remission. And may I suggest, that in all cases of primary syphilis a spinal fluid examination be made for it is now found that between 60 and 70% of all cases of untreated syphilis have an abnormal spinal fluid. Such cases should be treated until the fluid is clear. Only in this way can we prevent syphilis of the central nervous system.

# NEURO-PSYCHIATRY AND INDUSTRIAL COMPENSATION\*

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During a conversation with a judge who has had considerable to do with the Workman's Compensation Act, he said the prolonged disability so often seen following trivial injuries, was due in large part to the fact the workman was dissatisfied with his occupation. He was speaking particularly about coal miners and said many were compelled to remain in this employment by economic necessity and not from choice. Consequently they preferred two-thirds pay and idleness to full pay and an undesirable "job". I believe this quite a factor in prolonging disability, but not the only factor.

You, of course, are all familiar with the train of symptoms following trivial injuries that are classed as "nervous". They are all subjective as no objective signs can be found. I do not believe they should be designated by such a dignified title as "traumatic neurosis" as this leads the claimant to feel he is indeed a veritable invalid, it is

<sup>\*</sup>Read at the annual meeting of the Oklahoma State Medical Association, Oklahoma City, May, 1929.

such a high sounding name. Levy-Suhl regards as useless the various names—such as traumatic neurosis, hysteria, or wish-neurosis—using instead the blunt "indemnity neurosis". Director Weiler of the neurologic section of the Bavarian station dealing with neurotic invalids, feels that even the name "neurosis" ought to be discarded to avoid giving the laymen the impression that the condition of these persons is due to injury. He thinks "indemnity craving" would be a better term.

Just the other day a patient, not any way connected with industrial compensation said a physician had recently told him he (the patient) had a neurosis and he was under the impression this is practically an incurable condition. I explained neurosis meant only nervousness and he seemed much relieved. Let the patient become thoroughly and honestly convinced that he is an invalid and he is lost as a producer, and the compensation is lost, and you and I, as members of society, pay the bill. There is no reason, if the patient be properly managed, he should not, in many instances, be an economic asset instead of a liability.

These claimants usually complain of dizziness, weakness on exertion and say they have insomnia and sweat easily. Occasionally one has, he claims, a paralysis usually both sensory and motor, of an arm or leg or are filled with vague fears. Now, of course there are some who have had a severe brain injury with or without fracture of the skull, but history of the injury and symptoms are definite and leave no doubt concerning a real injury in the examiner's mind. Certainly if the injury produced no disability at the instant it happened, the chances are greatly in favor of a trivial result. The only exception is what is termed a late hemorrhage from trauma of some meningeal artery. Then the symptoms come on in twenty-four hours and are definitely irritative or paralytic, that is, they have local or general convulsions or paralysis. Then too, there are instances in which no injury to the head is claimed and yet the injured one says he has been totally disabled and cannot work because of weakness, dizziness and insomnia, with perhaps headache.

The theory that dissatisfaction with one's "job" is a prime factor in postponing admitted recovery, is borne out by information gained while interviewing several claimants. A glass worker spent a half hour detailing how the glass making industry had "gone to the dogs" since the

advent of labor saving machinery and as he had some children who had about reached the end of adolescence and had some earning capacity, without actually saying so, gave me the impression that, unconsciously perhaps, he had decided it good time to retire as he was past middle age and saw prospects of etablishing permanent disability under the Workman's Compensation Act. The fact of the whole matter was, his injury was of so trifling a nature it could not have resulted in more than a few days' disability.

Another thing in which I do not believe, is routine spinal puncture in injured workmen. I have seen many claimants whom I am convinced had their alleged disability more firmly fixed in their minds because of this procedure and not a few who attributed new symptoms to lumbar puncture. It is a very valuable diagnostic and therapeutic measure, but should be used only in such instances in which the indications are plainly evident.

Now if a patient actually has a neurosis, it must be in one of three classes, hysteria, neurasthenia or anxiety neurosis. Simple "nervousness" will not do. The symptoms of hysteria, the so-called stigmata are too well known to physicians to require enumeration. Genuine neurasthenia is perhaps a little harder, at times, to recognize. It is an irritable weakness and has some somatic symptoms due to disturbance of the sympathetic system. Anxiety neurosis, the so-called psychasthenia, has its fears and phobias that come with startling suddenness and with more or less irregularity.

Naturally the first duty of a physician who is examining a patient who is said to have sustained an injury, is to find any organic change that is present and this requires a pains-taking physical examination with accompanying laboratory investigations. If there be any doubt, several sittings may be required to ascertain the presence or absence of any organic change. If none can be found, and the "nervousness" does not fall into one of the classes mentioned, it is proper for the examiner to report "no signs of disease or injury found". If any other disease is present, he should so report and state whether, in his opinion, the alleged injury was a contributory factor in its inception or exacerbation. I have stated above, dissatisfaction with one's occupation may be the cause of prolonging disability. There are others, a feeling of inadequacy, marital difficulties, conflicts with employers or fellow employees, and a host of others and I think

it a proper line of investigation the examiner should follow in determining the extent and cause of the alleged disability.

I have no reason to favor either the insurance company or the claimant, nor would I do so consciously, but certainly it is much better for all concerned to have the man return to work and thus save a good citizen to society instead of adding another non-producer. To me it is a calamity indeed, if a man is needlessly made an invalid and thus a liability instead of an asset. I have never had an insurance company to ask or in any way suggest I color my expressed opinion in the least. The physician should help the claim adjuster settle the case fairly, both to the claimant and the insurance carrier, but he certainly should get it adjusted as soon as possible and get the patient back to his regular occupation.

How can we aid in preventing such miscarriages of justice? First of all I believe the physician who gives first aid can do much by assuring the patient his lnjury is only of temporary nature if such be the case, and to tell him frankly he will be able to return to work in a short while. The claim adjuster, who often has lost faith in human nature, should retain his kindliness and sympathy for all unfortunates and not antagonize the claimant in any needless way. Then there should be a minimum number of physical examinations as the repeated enumerations of symptoms seems to impress them upon the mind of the claimant. Lastly, the physician, insurance company, and I may add, all the proper authorities should encourage the claimant to return to work as a therapeutic, sound, economic measure. I do not believe these patients should be placed in hospitals only under very exceptional circumstances.

# THE CLINICAL SIGNIFICANCE OF PURPURA

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Purpura is of frequent occurence in a wide variety of clinical conditions, yet comparatively little is known of its true nature and significance. The relationship between blood platelets and purpuric manifestations was largely established by the work of Duke¹ some 20 years ago. We recognize now that many clinical forms of

purpura are associated with platelet deficiency, but it is also apparent that this deficiency is not the only factor responsible for the purpura. Under certain circumstances purpura may be present with only a slight reduction in the platelet count, whereas under other circumstances the number of platelets may be reduced to 50,000 or lower before purpura appears. The course of idiopathic thrombocytopenic purpura before and after splenectomy emphasizes this point. The platelet count is usually low and purpura is a prominent symptom before operation.

Immediately following operation the platelet count rises and purpura no longer occurs. As time elapses the platelet count frequently drops well below normal, sometimes to a very low level, although purpura does not recur. The platelet count may be reduced experimentally by such agents as peptone<sup>2</sup> yet no purpura results. On the other hand, the number of platelets may be reduced by an antiplatelet serum and purpura can be produced in this manner. The production of purpura by such a method is not an immediate reaction, but requires several days. Hyde4 in 1928 demonstrated that if trauma to the tissue be added in addition to the antiplatelet serum, purpura would occur immediately. The trauma applied consisted in the mere shaving of the hair from the skin of the experimental animal.

It has been recognized that changes in the wall of the capillaries, commonly spoken of as capillary damage, might play a large part in the production of purpura. Such damage may be caused by a toxic substance circulating in the blood stream in which case the capillary change consists in an edema of the endothelial wall. Purpura may be produced mechanically by such means as the application of a tourniquet which probably accomplishes this result by changes in capillary pressure.

Purpura or purpuric rashes may occur in many different infectious diseases. This association is most frequently seen with meningitis, measles, typhus fever and Rocky Mountain spotted fever. It rarely occurs with pneumonia, streptococcus and staphylococcus infection. Investigations by Julianelle and Reimann' have thrown interesting light on such processes. They have found that pneumococcus extract will produce purpura in laboratory animals. This property is common to various strains of pneumococcus but is not found in a number of other organisms such as the hemolytic streptococcus and green pro-

ducing streptococcus. The substance apparently has three distinct properties—it is hemolytic; it is thrombocytolytic and it will produce purpura. Heat will destroy thrombocytolytic property and its hemolytic property but does not destroy its ability to produce purpura. Mair working along similar lines adds another possible factor in the production of purpura. He found that different mice showed a varying susceptibility to this purpuric producing substance. He was able to propagate strains of mice which were peculiarly sensitive to this substance. In other strains he was unable to produce purpura. Thus evidence is produced that a toxic substance may destroy platelets and produce purpura. These properties however are distinct and the purpura does not depend upon the reduction in the number of platelets. In addition there is evidence that some inherited susceptibility may play a part in the production of purpura. The occurence of purpura in certain infectious diseases is caused by thrombosis of the capillaries due to bacterial emboli.

There is a rare type of purpura which is probably due to some congenital or inherited defect. Hemophilia might also be considered in such condition. Whether the defect is in the blood or capillaries is not known. Many drugs and chemicals may produce purpura. Saponin destroys red blood cells and platelets and produces purpura<sup>8</sup>. Benzol, arsenic, iodine, quinine and atropin have all been reported as producing purpura. In some cases there is an obvious destruction of platelets associated with the purpura but as a rule no such change is demonstrated. Benzol will cause such a change in any individual whereas the other drugs mentioned produce the change in only certain apparently hypersusceptible individuals.

Purpura is frequently seen in non-infectious conditions which perhaps may best be termed metabolic disturbances. The most important of these conditions are rickets, nephritis, scurvy and arteriosclerosis. In these conditions nothing is known of the exact mechanism causing the purpura but it is agreed that local changes in the capillaries are propably the most important factors. The platelets are not reduced in this group of conditions and are thought to play no part in the production of the purpura.

Purpura, together with prolonged coagulation time and bleeding time, frequently occurs in cases of severe jaundice.

The platelet count under such circumstances is usually within normal limits, although occasionally it may be somewhat reduced. It is quite likely that capillary changes play an important role in this type of purpura. On the other hand physical changes in the plasma due to the presence of an excess of bile salts may cause a tendency to purpura without there being any capillary damage. Bile salts will alter surface tension quite notably.

Within the past few years, interesting investigative work suggests that purpura may play a part in the response of the body to foreign protein invasion and allergy in general. In this entire group of clinical conditions the blood picture including the platelet count is essentially normal. This is the group of diseases to which Osler referred as the erythema group, and the clinical picture is characterized by purpura associated with visceral symptoms. The different clinical entities are known by a variety of names. Schonlein's disease is the name applied to that condition where purpura is found associated with joint symptoms. Urticaria or giant urticaria, is the term applied to that condition where purpura and hemorrhages from the mucous membranes are associated with urticarial wheals, Erythema nodosum is the name applied to the clinical condition where a deep subcutaneous nodule, frequently purpuric in nature, appear on the extremities associated with moderate fever and systemic reaction. Henoch's purpura is the term applied to the condition in which purpura is associated with abdominal pains. Alexander and Eyermann' have recently demonstrated the relationship between this condition and hypersensitiveness to certain food. That the different clinical pictures comprising this group may be very closely related, was demonstrated this past winter by a case observed in Barnes Hospital.

#### CASE REPORT

A young girl, age 19, was subjected to tonsillectomy because of repeated attacks of tonsillitis. Five days post-operative, she developed a septic temperature reaching peaks of 104 degrees. Her spleen became enlarged and she presented the picture of septicemia although no embolic phenomena were noted. Blood cultures were sterile. On the third day of the fever, which was the eighth day postoperative, she developed acutely inflamed joints. The joints involved were the left elbow and wrist and right knee. She presented at this time a typical picture of rheumatic fever except

for the enlarged spleen. The following morning she developed urticarial wheals which were confined to the swollen areas around the involved joints. The same evening she developed a purpuric lesion in the loose tissues beneath the left eye. She was given salicylates. The temperature subsided and the joint symptoms disappeared. The urticaria became widespread and was associated with angioneurotic edema of the upper lip, but disappeared entirely in two days. On the fourth day following the appearance of the joint symptoms, she developed acute abdominal pain and presented the picture of an acute abdomen so accurately that the surgeons were called in consultation. It was decided that she was probably a victim of Henoch's purpura and was further observed. The pain subsided within thirty-six hours and recovery thereafter was uneventful.

This one patient at different times presented the clinical pictures of rheumatic fever. Schonlein's disease, urticaria and Henoch's purpura.

Purpura occurring in the course of pulmonary tuberculosis offers an interesting field for speculation. We are coming to recognize many features of anaphylaxis in tuberculosis and it is just possible that purpura may at times be an evidence of such an association. Much has been written concerning the relationship between tuberculosis and purpura hemorrhagica. It is true that a clinical picture which cannot be distinguished from idiopathic thrombocytopenic purpura may occur in the presence of tuberculosis. Purpuric lesions, sometimes associated with joint symptoms but unassociated with platelet deficiency occasionally occur in tuberculosis. Purpura hemorrhagica has been produced experimentally by the injection of tuberculin in laboratory animals. There is some evidence that a simple non thrombocytopenic purpura may occur in tuberculosis which is similar to the purpura in the erythema group and probably likewise dependent upon anaphylactic phenomena.

In the foregoing part of this paper an attempt has been made to review briefly the factors which may be instrumental in producing the clinical picture of purpura. A summary may be made as follows:

Purpura may be dependent primarily upon platelet deficiency. Such a deficiency may be idopathic. On the other hand it may be due to some known toxic agent. This agent may be a bacterial toxin, a drug or chemical. The same toxin may produce purpura in one individual and produce no demonstrable effect in another, suggesting a difference in susceptibility of individuals. This difference is possibly an inherited characteristic.

Purpura may be dependent chiefly upon changes in the capillary wall or upon some abnormality in the blood aside from the platelets. Such a change may be an individual peculiarity and thus an inherited characteristic.

It may be due to a bacterial toxin, drug, chemical, or metabolic product. The change in the capillary wall may be related to some anaphylactic phenomena.

A combination of platelet deficiency and capillary damage may occur and the purpura result.

Purpura may be caused by embolic phenomena.

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#### THE PHYSICO-CHEMICAL INTER-PRETATION OF CANCER\*

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I feel that I should apologize for speaking to such a general audience on what may appear to be a technical subject. However, I predict that in the next ten years one will find it necessary to apologize if he attempts to discuss any fundamental biological subject without using a physicochemical background. The human body is essentially a colloidal mass, and if anyone should know physical-colloidal chemistry in all its applications it is the doctor. The physiologists and those working with functional protoplasm have gone a long way out of their way in an attempt to avoid the application of colloidal chemistry. They have avoided the more simple consistent

<sup>\*</sup>Reported before the Section on Medicine, Annual Meeting, Oklahoma State Medical Association, Okla-homa City, May, 1929.

interpretation and have substituted an extensive nomenclature which only names conditions and gives no explanation for the observed facts.

In reviewing the very extensive literature appearing on the subject of cancer one is impressed by the fact that only an occasional paper appears touching on colloidal chemistry. Therefore it has been my object in the development of this paper to aid in establishing a consistent interpretation of the observed facts noted in the study of cancer. I wish to give a quotation from Dr. A. P. Mathews which expresses my attitude, "An examination of the colloidal state and particularly of the colloidal proteins is necessary for the understanding of vital processes".

The author has previously made several studies applying physico-chemical methods to the study of phenomena occuring in the circulating tissue, (blood). The present study was undertaken with the knowledge that facts observed in the circulating tissue may be applied to the fixed body tissue.

#### TISSUE GROWTH IN VITRO

When fixed tissue cells are placed in blood plasma and especially when such cells are crowded or the environment becomes stagnant, there is developed about the tissue an area of coagulation. This zone of coagulation is gradually removed and disappears about the areas of greatest growth. These observations have raised the following questions.

First, what are the forces active in producing the coagulation about the cultured tissue?; second, what is the mechanism by which the clot is removed?

What are the forces active in producing the coagulation? Coagulation of the plasma proteins is produced when substances change the colloidal proteins of the plasma producing a (1) Mass of low hydration capacity; (2) Maximum surface tension; (3) Maximum cohesion; (4) Isoelectric point.

It will be noted that tissue cells must be crowded together and the environment stagnant to properly promote the coagulation of the p'asma about the tissue. When tissue cells are crowded with insufficient oxygen supply, there is developed a relative acid condition due to the accumulation of carbon dioxide. If the hydrogen ion concentration becomes sufficiently great, precipitation (coagulation) of the fibrinogen will occur in the form of hydrogen-fibrin-

ate, the process being similar to the formation of hydrogen-casinate and hydrogen sterate.

The precipitation (coagulation) may also occur due to the contact of the two oppositely charged colloids. The tissue cells in a high carbon dioxide concentration (relatively high hydrogen ion concentration) will unite with the acid present to form electro-positive colloids, such colloids coming in contact with the electro negative colloids of the plasma will produce precipitation (coagulation) by establishing the four conditions enumerated above.

What is the mechanism by which the clot is removed? The clot is removed by the usual process of autolysis. The onset of such autolysis is delayed until a higher hydrogen ion concentration is developed. The fixed body cells do not undergo autolysis until the media becomes quite acid. The production of acid is increased due to the formation of the clot; the clot causes decreased oxidation and aids in the accumulation of carbon dioxide. As autolysis progresses there are created split products of protein, carbohydrate and fat hydrolysis. These substances act causing,

- 1. Increase in hydration capacity of the colloids.
- 2. Decreased surface tension.
- 3. Decreased cohesion.
- 4. Charges the colloid from the isoelectric point.

The tissue in contact fulfills these conditions and the increase in size accompanies the growth stimulus.

#### TISSUE GROWTH IN VIVO

The order of events in tissue growth in vitro was noted to be crowding, stagnation, coagulation and liquifaction with the liberation of growth stimulus. The same sequence of events occur in tissue growth in vivo. The following several lines of evidence point to the fact that cancer tissue develops in areas of suppressed oxidation, lowered metabolism and carbon dioxide accumulation.

- 1. Millet has reported fresh cancer tissue to be of pH 6.8,
- 2. In the pre cancer stage of tar cancer there is an increased acidity reported,
- 3. The surface tension of cancer tissue is less than normal tissue, and,
- 4. Radium emanations show a selective affinity of neoplasm.

All these lines of evidence point to the fact that growing cancer tissue differs in potential from normal tissue. This is further supported by the following observation: Tissue growing in vitro shows cell migration and changes in cell contour; these changes give the impression that motility is present. If the tissue cells are then subjected to X-ray emanation there is a complete cessation of all such motion. Some have considered that the cessation of motion is evidence of the specific action of X-ray. I am inclined to think the X-ray action is not specific but is only an illustration of an established isoelectric point. It will be observed that such discharged tissue undergoes great shrinkage with retraction. It has previously been stated that the isoelectric point yields: first, electrical neutrality; second, maximum surface tension; third, maximum cohesion, and fourth, lowered hydration capacity.

The growth of tissue in vitro is greatly increased by the presence of embryonic juice, the increase being so great has caused some authors to maintain that growth of fibroblasts is not due to the serum but to the small amount of embryonic juice within the tissue itself. It may be significant in this connection that foetal blood at half term has been shown to have a pH 5.8 at term 6. and six days after birth 7.; embryonic guinea pig skin growing best at pH 5.8 to 6.

It is generally understood that cancer has a special selection for age and location, also that irritation of certain organs predispose to cancer formation. Cancer occurs in the breast and uterus (two frequent sites of cancer development) at a time when there is involution, lowered metabolism, stagnation and carbondioxide accumulation. The transition of ulcer to cancer is common in the stomach and bladder, these organs being bathed in fluids which are definitely acid.

In order to avoid confusion it is necessary to consider three zones in any discussion of cancer: (1) Cancer tissue; (2) Zone between cancer tissue and normal tissue, and, (3) Normal tissue.

Any treatment of cancer must be developed with a knowledge of the presence of these three zones.

From the above discussion, one is led to believe that the principal method of combating cancer consists of prevention by: first, maintaining a high rate of metabolism in the tissue, that is a high rate of oxygen exchange; second, avoiding any condition which may produce stagnation and crowding of cells; third, the possible suppression of the zone of autolysis by the administration of a substance which liberates free oxygen in the tissue (such a substance is being tried at present); fourth, complete precipitation with asphyxiation of cancerous tissue leading to autolysis of the cancer. This last is being attempted by the administration of a colloidal coagulant with proper electrical charge. Also radiated auto serum may prove effective in sufficiently large doses as it has been demonstrated to concentrate in the cancer tissue.

# TUBERCULOSIS OF THE 'THYROID GLAND\*

S. W. BUDD, M.D. AND CARRINGTON WILLIAMS, M.D.

The authors point out the fact that pathologists, prior to the mid nineteenth century, thought the thyroid immune to the tubercle bacillus. As late as 1861, Rokitansky stated that tuberculosis never occurred in this gland. In 1862, Lebert described one of the first authentic cases. In 1865, Virchow expressed the belief that there was some antagonistic action between thyroid tissue and the tubercle bacillus, but was able to report three cases. Since this time the number of reported cases has increased steadily but the evidence goes to show that they are not numerous.

The miliary type is the most common and the authors suggest that a thorough study of the thyroid in cases of miliary tuberculosis might prove it to be more commonly present than we have thought. The disease may appear in any form; fibrosing, caseating or calcifying. Fistula of the neck leading to cold abscess in the thyroid has been reported. Infiltration of surrounding tissues and fixation of the gland make result.

The purpose of this paper is to report three cases of the sclerosing type, and to discuss the characteristics of this type. Practically all reported cases have come from French writers and it is suggested that this type may be more common among the French.

The thyroid is converted in part or in whole into fibrous tissue. The tubercle

<sup>\*</sup>From the Journal American Medical Association, May, 25, 1929.

bacilli have not been found in this type but it is thought that the sclerosis is due to toxines in the blood arising from some remote tuberculous focus. As a rule the gland is small and hard but it may be larger than normal.

The author makes the following interesting comment:

The three cases reported here have much in common from both the clinical and the pathologic points of view. The patients were all women of approximately the same age (average, 41 years); all complained of soreness and tenderness in the region of the thyroid of a few months' duration; all three had slightly elevated temperatures and accelerated pulse rates; two had lost weight (average, 20 pounds); all were nervous, and two had increased basal metabolic rates. No positive signs of other tuberculosis were found in any of them, but one had had bronchitis for several years, and another had the scar of a cervical abscess and a chronic anal fistula. Pathologically all had the fibrous type of tuberculosis, which is the most unusual manifestation of the disease. The wounds healed in from two to four weeks; all gained weight (average, 10 pounds), and the general symptoms were largely relieved.

The diagnosis of sclerosing tuberculosis of the thyroid is important. Our first patient was suspected of having a malignant condition until a frozen section clarified the diagnosis. The second patient seemed to have an acute pyogenic infection and operation was delayed. The third case was diagnosed properly prior to operation because we had seen the other two so shortly before.

Tuberculosis of the thyroid is usually incidental to tuberculosis in other parts of the body; it is found more often at autopsy than at operation, but it is sometimes found when not suspected in adenomatous goiters.

The fibrous type, to which all of our cases belong, is easily confused. It has the same appearance as gumma of the thyroid but can be distinguished from it by the presence of pain, tenderness and fever. The Wassermann reaction should give a positive differentiation, and in the early stages there is likely to be an increased metabolic rate in tuberculosis and a rate of syphilis. It can be differentiated from acute thyroiditis by the less acute onset, less intense pain and tenderness, lack of increase in the leukocyte count, and the

more chronic course. It is more difficult to rule out malignant disease, but the fever, tachycardia, tenderness and increased metabolic rate would suggest the inflammatory nature of the gland. If confusion exists even at operation, a frozen section of removed tissue will correct it. This differentiation, is of great importance, because the operation for malignant disease should be more radical than is necessary for tuberculosis.

The disease is a destructive one, so that in cases of long standing, lack of thyroid tissue may result in myxedema. In the early stages a mild degree of hyperthyroidism is likely to be present.

The treatment consists in the surgical removal of the diseased tissue as completely as possible, although, if a small amount of infected gland is left, the wound will heal and the body will take care of the remnant. This should be accompanied by the proper hygenic and dietary regimen for a tuberculous patient.

The prognosis for a local cure of the disease is excellent unless there is extensive invasion of surrounding structures. The presence of other foci of the disease determines the general outcome of the patient."

# MECHANISM OF GALLBLADDER AND ITS RELATION TO CHOLELITHIASIS

Lester R. Whitaker, Boston (Journal A. M. A., May 14, 1927), summarizes his review of gallbladder function and activity as follows: The contents of the normal gallbladder are expelled by the activity of its masculature during the digestion and absorption of fat. Proof does not exist that this effect is brought about by a reciprocal action between the sphincter of the common bile duct and the gallbladder; in fact, there is considerable evidence against it. Stones can be produced experimentally in animals by interference with the normal mechanism for filling and emptying the gallbladder, resulting in stasis, and overconcentration of bile. It is possible that stones are produced in human beings by dietetic habits resulting in stasis. It is also possible that debilitating diseases, by reducing the muscle tonus of the gallbladder, favor stasis and the formation of stones. Stones can be forced out of the gallbladder in experimental animals by the giving of fat. It is probable that the same effect can be produced in human beings by the same means, provided the stones are not too large or the disease has not progressed far enough to render the musculature of the gallbladder ineffective.

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#### EDITORIAL

# DANGERS OF THE SPINAL ANESTHESIA CASE

No type of anesthesia has so suddenly had such enthusiastic and justifiable reception as the spinal anesthesia. It will probably grow in popularity and deservedly so. Results of its use in proper and selected cases is brilliant, spectacular, satisfactory and safe, but a fatality resulting from its use is a tragedy, and often one which might have been averted. The successful use of spinal anesthesia depends first on the exercise of great judgment by the surgeon and anesthetist, if they are two individuals. The higher the field of operation, the more dangerous the proced-

ure becomes; by common consent most men, that is good operators, stop at the level of the diaphram. Gall bladder, kidney and stomach surgery, while as a rule are nicely performed under this type of anesthesia, offer more obstacles and present more dangers than when the drug is so placed in the spinal canal that it only anesthetizes operative regions lower down. It would seem that for operating on the extremities, the lower abdomen and genitourinary system, there could hardly be any possible danger, but there is, the danger lies, not in the place where the anesthetic is being placed, but at the high point to which it might gravitate.

Administration of spinal anesthesia calls for intelligence, team work, and alert appreciation of danger signals. Constant blood-pressure readings are not only essential but they are the only means by which the anesthetist may be early appraised of the beginning of a dangerous situation. If the lighter than spinal fluid solution, that is the Pitkin, is used, the Trendelenberg position is the order of the day and it must be maintained. Even the drug should be administered with the patient in the prone position, on the side, and in a slight Trendelenberg, thus preventing its reaching the medulla.

Pitkin estimates that with the patient sitting, the spinal anesthetic can reach the medulla in eleven seconds, therefore with this solution nothing but the prone position should be used. The use of spinocain calls for the preliminary use of ephedrine but ephedrine is not nearly so useful and reliable in combatting blood-pressure fall as is epinephrine intravenously. Labat, Evans, and Babcock, all admirable authorities on this subject, advise (a) selection of the patient; (b) team work; (c) and necessary resuscitative combative material ready at hand, which may be used and flowing into the patient's vein in a minute or less. All authorities are aware that dangers must be early observed and must be met with the greatest promptness. With these things in mind it should not be forgotten that the lack of preliminary precaution and preparatiion is inexcusable and may result in a tragedy.

It is believed that for certain types of cases spinal anesthesia, properly administered, is one of the most remarkable achievements of modern medicine, but its administration cannot be trusted to the negligent or inexperienced.

#### VACATION PERILS

The United States has the vacation habit. In the last few years it has enormously increased. Transportation has been made so easy by the owners of millions of automobiles that access to mountains. lakes, rivers and streams is easy. Most of these trips present more or less dangers. Even the far off Rocky and Sierra Nevada Mountains, while practically free from malarial bearing mosquitos and similar hot weather pests, are potentially dangerous in a small way, in the possibility that Rocky Mountain fever may be acquired. Once on a northern California fishing trip the author recalls a general warning from the possible dangers from rabid wolves and coyotes.

To Oklahomans the first danger of an outing in the hills and along the streams in this State and in Arkansas is malarial infection. Lately there has been an enormous increase in this infection, no doubt due to the unprecedented rain-fall followed by large accumulation of stagnant water, which only evaporation could care for. It is well known that when a locality once becomes infected, if the medium of growth, the malarial bearing mosquito is present, the increase in infection of human beings is prompt, unmistakable and most difficult of control. To those who go on such trips, week-end or longer, the danger in selecting a camp site should not be overlooked. If these are in a malarial district and the camper is not well protected, malarial infection is almost sure to be acquired, and the length of morbidity is after that, problematical. The best protection is thorough screening; after which therapeutic doses of quinine nightly for a time are almost surely preventative.

Of course there are other dangers aside from the most common malaria. Those who are not protected by anto-typhoid vaccination may acquire that from water or from food served them at the thousand or more indifferent eating places. Here, of course, the ideal protection is vaccination. The smaller infections due to bites and stings are sometimes very troublesome. The dangers from snake bite seems to have increased, not because of an increase in snakes, but because thousands of people are tramping around where snakes are to be found. Antivenin is a tried and successful remedy, but moderate caution may obviate any necessity for its use. The woodsman should remember that venemous snakes are often in pairs and if one is seen, the unseen one is more often the dangerous one. Perhaps the best prophylactic against these is to keep your hands and face out of unknown places and wear high boots or puttees.

#### MEDICAL DEFENSE

For the information of our members it is decided to call their attention to the terms upon which Medical Defense is extended and available. At the out set it should be stated that formerly the Association undertook to pay all legal expenses. Gradually it was noted that some of our members attempted to include every other conceivable form of expense. The average amount spent in defending these cases was about \$400.00. In one case more than that amount was expended and the next year the successfully defended member lapsed his membership and has never renewed. One of the earliest cases ever defended cost the Association an expense bill of more than \$400.00; he too lapsed his membership and remained so. This was so disheartening that it was decided to limit the maximum amount of expense in any one case to not more than \$100.00.

One of the most irritating phases of it was the palpable lack of good faith shown in some cases. In one case a member paid his dues, say on the 5th of May, was sued on the same date and expected the Association to defend his case, though his membership fee was not received until well along in June. This member gravely stated that the first intimation that he was to be sued was received the day or day after he paid his dues. Under the present rule—and they are positively binding—the following are necessities:

1. The member sued must have been in good standing upon the date of the alleged malpractice and must have remained so continuously (the only exception to this is that there is a month of grace, January of each year, in which the dues must be received in the office of the State Secretary).

An example of how a member may get in trouble under the above rule is this: He performs some service, say in 1928, he neglected to pay his dues, disregarding both notices from his County Secretary and the State Secretary, finally paying them in March or April, 1929. He is sued for alleged malpractice in May, 1929. He is not entitled to any aid, for his member-

ship expired December 31, 1928. Had he paid his dues as late as January 31, 1929, he would have been entitled to defense.

- 2. Malpractice must be alleged. This money was not intended to be used in defending any other type of action. Notwithstanding this it is not uncommon to receive requests for aid in other than malpractice suits.
- 3. Strictly speaking the Association should have prompt notice of a suit, a copy of the petition filed against the doctor and the names of his attorneys as well as those bringing the suit. Of course if the suit is merely filed and never comes to an issue and the attorney's bill is a nominal fee of \$25.00 or \$50.00, which is sometimes the case, the member is not entitled to the full amount of \$100.00 to which he might otherwise be entitled. In other words if his attorney fee is \$100.00 or more and is expended in good faith in defending a malpractice suit, he is entitled to reimbursement to that amount.

#### Editorial Notes -- Personal and General

DR. C. G. SPEARS, Altus, is reported seriously ill.

DR. J. B. CLARK, Coalgate, is in New York City taking postgraduate work.

DR. J. H. VEAZY, Madill, has been appointed surgeon for the Frisco railroad at that point.

DR. A. L. MOBLEY, Muskogee, took two weeks' military training at Ft. Sam Houston in July.

DR. A. H. HATHAWAY, Mountain View, spent two weeks in June in Rochester, attending the Mayo Clinic.

DR. S. E. MITCHELL, Muskogee, spent three weeks on an automobile trip through Arkansas and Tennessee in June.

DR. and MRS. HOWARD S. BROWNE, Ponca City, spent two weeks in Denver, Colorado, where Dr. Browne attended an eye, ear, nose and throat clinic.

DR. WM. C. MILLER, Guthrie, spent several weeks in Denver, Colorado, taking a postgraduate course in the Colorado Congress of Eye, Ear, Nose and Throat.

DR. H. H. CLOUDMAN, Oklahoma City, has been named as full time health officer of the Oklahoma City schools. Dr. Eva Wells was selected as assistant.

DR. A. J. WEEDN, Duncan, spent two weeks in Atlantic City attending the international convention of the Protestant Hospital Association, June 13 to 17, and the national convention of the American Hospital Association, June 17 to 21.

THE STEPHENS COUNTY MEDICAL Society met in Marlow June 25, with Drs. C. N. Talley and W. Z. McLain as hosts, Dr. J. A. Hatchett delivered an oration on "Toxemia of Pregnancy," and Dr. C. M. Pounders lectured on "Summer Diarrhea in Children."

THE SOUTHERN OKLAHOMA Medical Association met at Medicine Park, June 27. The following program was rendered: "The Social Aspect of Tuberculosis," Dr. E. E. Darnell, Clinton, Okla; "Toxic Goitre," Dr. H. W. Livermore, Chickasha, Okla; "Skin Diseases Commonly Met by the General Practitioner" C. P. Bondurant, Oklahoma City; "Treatment of Infections of the Hand" (motion picture film) by Oklahoma State University Extension Department. A fish dinner was served at 6 P. M.

THE STATE BOARD OF MEDICAL EXAM-INERS, terms expiring in 1933, have received appointment by Governor Holloway as follows: Dr. W. P. Fite, Muskogee, regular; Dr. H. C. Weber, Bartlesville, regular; Dr. Frank H. McGregor, Mangum, regular; Dr. J. M. Byrum, Shawnee, regular; Dr. L. E. Emanuel, Chickasha, physio-medic; Dr. W. T. Ray, Gould, eclectic; Dr. D. W. Miller, Blackwell, homopathic. Dr. D. W. Miller, Blackwell, was made president, and Dr. J. M. Byrum, Shawnee, secretary. The personnel of the Board remained as formerly with the exception of Dr. Frank McGregor, who was appointed to succeed Dr. Harper Wright, formerly of Grandview, now of Oklahoma City.

TRANSACTIONS WOMAN'S AUXILIARY OKLAHOMA STATE MEDICAL ASSOCIATION.

The Auxiliary to the Oklahoma Medical Society met in the Huckins Hotel, Oklahoma City, May 29, 1929, with president, Mrs. W. K. West, presiding.

Five counties were represented by visitors; Oklahoma and Pottawatomie, the two organized counties, by delegates. There were forty-five in attendance.

Report of Officers:

Mrs. B. A. Hays, treasurer, reported \$32.16 in treasury. Mrs. C. M. Pounders report of the work of Oklahoma County Auxiliary was interesting and inspirational. She reported forty-four dresses made for Childrens' Hospital; handerchief shower for girls in Home of Redeeming Love and other philanthropic activities. Report of Pottowatomie County was given by Mrs. T. D. Rowland of Shawnee: Hygeia has been placed in the Public Library and

High Schools of Shawnee. Last winter the auxiliary adopted the family of a disabled soldier and provided a joyful Christmas for them. Each month, a committee of two is appointed to provide books, magazines and flowers for ward patients in the hospitals.

The president's address by Mrs. W. K. West was interesting and constructive. She especially recommended and requested that we prepare and preserve for permanent record the early history and traditions of the pioneer doctors of Oklahoma and that a historian be appointed for the purpose.

Mrs. Irvin Abel, national treasurer, of Louisville, Kentucky, was introduced and in her talk made a plea for further state organization. She, too, requested the data of early-day practitioners and their interesting experiences.

Mrs. J. M. Byrum, Shawnee, was introduced and installed as president for the coming year.

Mrs. A. L. Blesh, Oklahoma City, gave a report of the nominating committee and the following officers were elected:

Mrs. Lloyd M. Sackett of Oklahoma City, President-elect.

Mrs. T. D. Rowland, of Shawnee, Secretary.

Mrs. S. E. Frierson of Oklahoma City, Treasurer.

Mrs. W. C. Bradford, of Shawnee, Historian.

Mrs. John Q. Mraz, Mrs. Horace Reed and Mrs. W. J. Wallace were elected as delegates to the meeting of the Woman's Auxiliary to the American Medical Society in Portland, Oregon.

Our Medical Society and State Board of Health have never at anytime invited our Auxiliary representatives to their health conferences.

MRS. T. D. ROWLAND, Secretary. MRS. J. M. BYRUM, President.

EYE, EAR, NOSE and THROAT
Edited by Jas. C. Braswell, M. D.
1109 Medical Arts Bldg., Tulsa

Modern Cataract Surgery, Mills, L.: J. Am. Assn., 1928, xci, 1979.

Mills discusses postoperative iritus and prolapse of the iris.

Postoperative iritis is of four types: (1) traumatic iritis, (2) endophthalmia phaco-anaphylactica, (3) endogenous iritis, and (4) exogenous iritis.

Traumatic iritis is caused by rough or excessive manipulation of the tissues, irritation from hard fragments of lens remaining in the eye, tissue inclusions in the wound due to poor operative technique, pressure and drag on the incarcerated iris tissue, and a drag on the intact iris by herniation of the vitreous into the anterior chamber.

Endophthalmia phaco-anaphylatica may be prevented by careful expression and irrigation of loose lens cortex and in some cases by irrigation of the anterior chamber with warm half-normal saline solution (Reese), which gives definition to the lens substance that otherwise is not visible. Mills states that in his experience irrigation has never been followed by iritis.

Endogenous iritis develops from one to several weeks after any form of cataract operation as the result of unrecognized focal or systemic disease such as dental abscesses and intestinal infections.

Exogenous iritis is due to infection of the tear sac and bacterial invasion by way of tissue incarcerated in the wound.

Prolapse of the iris may be primary or secondary. Primary prolapse is due to prolonged fixation of the globe and iris following the knife blade through the incision. Secondary prolapse is caused by trauma due to awkward operative manipulations, excessive pressure, too small an incision, the pressure of defective dressings, meddlesome and too early inspection of the wound, strains and assaults during convalescence, defective incisions, delay of healing, and omission of iridectomy.

Until recently, the treatment of the incision in cataract surgery has been out of line with the treatment of other presumably clean operative wounds, i.e., full suture of the wound to prevent infection and restore the normal relations. Failure to suture the operative wounds of the eyes has been the chief single cause of infection from without and the extrusion of the intra-ocular contents. These complications may be avoided by covering the wound with a narrow but complete flap of conjunctiva formed during the incision or before, closing the flap over the sclerocorneal wound, and fixing it with about five interrupted sutures placed with regard to the peculiarities of the wound

The Diagnostic and Prognostic Significance of Retinal Haemorrhage. Lamb, F. W.: Ohio State M. J., 1928, xxiv, 949.

Retinal haemorrhages may occur in any of the layers of the retina. Their anatomical location is an important factor in the prognosis as to vision.

Except in cases of obstruction or injury, the primary cause of retinal haemorrhage is disease of the blood-vessel walls. Retinal haemorrhages occur most commonly in nephritis associated with neuroretinitis. When there is a well-developed retinitis, the prognosis as to life is poor.

In arteriosclerosis, retinal haemorrhage is common and indicates that the blood-vessel walls are considerably weakened and that apoplexy is impending.

In diabetes, retinal haemorrhages are usually round and punctate and occur near the maculs. The prognosis for life is better than in albuminuric retinitis.

In leukaemia, the haemorrhages usually occur

in the fiber layer and near the periphery and have a white spot in the center. The prognosis is poor for vision and life.

Haemorrhages seen in the retina in a case of anaemia point to the diagnosis of pernicious anaemia.

In thrombosis of the central retinal vein, haemorrhages are exceedingly numerous.

When the diagnosis of choked disk is uncertain, a haemorrhage at the margin of the disk eliminates the doubt.

Retinal haemorrhages occur in from 30 to 40 per cent of newborn infants. In such cases they usually become absorbed without loss of vision.

An aid in the diagnosis and study of retinal haemorrhages is the use of the red-free light in the ophthalmoscopic examination.

Ocular Complications of Diabetes., Gifford, S. R.: Med. Clin. N. Am., 1928, xii, 423.

The best known ocular complication of diabetes is cataract, but the author believes that as a large percentage of diabetic cataracts occur after the fortieth year of age, a time of life when ordinary senile cataracts also develop, the importance of cataract as a complication of diabetes is overestimated. He states that a cataract should be regarded as a diabetic cataract only when it conform to the type occasionally seen in young diabetics. This type is characterized by the appearance under the capsules of both lenses of fluid vacuoles which progress rapidly. A condition allied to diabetic cataract is the occurrence of remarkable changes in refraction during the course of diabetes. This is probably due to a change in the osomatic pressure of the blood. The high blood sugar allows fluid to penetrate the capsule, causing the lens to swell, with resulting myopia.

Changes in the intra-ocular tension occur in diabetes. With high blood sugar and acidosis, hypotony is the rule. Two types of retinal lesions are seen: (1) white patches, which are usually small and single or occur in small groups, and (2) haemorrhages. It is probable that the arteriosclerosis which accompanies diabetes is an important factor in the etiology of the retinitis. The prognosis for life and vision is much better in these cases than in cases of albuminuric retinitis.

Otological Observations in Trauma of the Head: A Clinical Study Based on Forty-Two Cases., Grove, W. E.: Arch. Otolaryngol., 1928, viii, 249.

Grove states that persons who have sustained an injury of the head should be examined as soon after the accident as possible and at regular intervals over a considerable period of time.

The severity of the injury does not bear any direct relation to the development or degree of cochlear and vestibular symptoms.

Most injuries to the head in civil life are caused by a broadly acting force which compresses the skull with or without causing fracture. This compressing force results in damage to the brain, the cerebrospinal fluid, and the vascular system of the blood as well as to the skull.

In the skull, the compressing force of the in-

jury finds its greatest expression at the base because of the more or less unequal strength of the constituent parts of this portion. The middle fossa, being weaker than the anterior or posterior fossae, is most often affected. The pyramid, weakly attached in the middle fossa, takes the brunt of the injury to the base and is frequently damaged.

Fractures of the temporal bone are divided into transverse fractures, longitudinal fractures, and avulsion of the tip of the petrous temporal bone. The longitudinal fractures are the most numerous. The labyrinth is damaged by the concomitant concussion and the fracture usually involves the middle ear and external canal. Transverse fractures cross the pyramid at right angles and completely destroy both the vestibule and the cochlea. Avulsion of the tip of the petrous bone is relatively rare.

The damage to the brain is caused by compression of the brain beneath the point of impact and at a point directly opposite. The damage done by the cerebrospinal fluid is caused by the compression of the lateral ventricles which sets the fluid in motion to expend its force in a whirl-pool action in the fourth ventricle. The damage to the blood vascular system consists in a state of traumatic paralysis of the vasoconstrictors with resulting stasis of the circulation in the brain tissue, particularly in the central vestibular area annd probably also in the labyrinth.

In the temporal bone the chief findings at autopsy are haemorrhages. The intralabyrinthine haemorrhages are always perilymphatic unless the capsule of the labyrinth is fractured, in which case they may be also endolymphatic. The region most frequently affected by these intralabyrinthine haemorrhages is the scala tympani in the vicinity of the round window. The nerves may be torn or damaged by pressure from haemorrhage before their entrance into the pyramid, within the porus acusticus internus, or in the narrow bone canals leading to the endorgan.

The pathological changes in persons dying years after an injury to the head are atrophy of the nerve fibers, atrophy of Corti's organ, which is most marked in the basal coil, and complete or partial filling of the inner ear spaces and canals with hyaline connective tissue and bone.

The results of experimentation on animals show that the effects of mild injuries are the same as, though less marked than, those found at autopsy in the temporal bones of human beings, namely, haemorrhages in the inner ear, most marked in the basal coil of the cochlea and in the region of the round window, always in the perilymph spaces and never in the endolymph spaces. Degenerative changes are seen also in the nuclear territory of the eighth nerve in the floor of the fourth ventricle, affecting mainly the small cells of the nervus triangularis, the neucleus of von Bechterew, the tuberculum acusticum, and the posterior corpora quadrigemina. These changes are probably due mostly to vasomotor disturbances in this section producing stasis with subsequent destruction of tissue.

Haemorrhage from one or both ears occurred in nine of the cases reviewed. The author regards this as almost indisputable evidence of a longitudinal fracture of the temporal bone. It does not mean, however, that great damage to the function of the ear will necessarily ensue.

A cardinal symptom of injury of the vestibu-

lar system is vertigo. The vertigo is vestibular in origin if it has a rotary quality, if it comes on in attacks accompanied by nystagmus, or if it is produced by bending movements of the head. Other types of vertigo after injuries to the head are apt to be neurotic, especially if they are constantly present after the first two weeks or are accompanied by severe nausea, vomiting, and great mental excitement. The author is always strongly suspicious of a neurosis if the patient complains of a constant headache and vertigo after the first week or two following the injury.

Spontaneous nystagmus is another cardinal symptom of vestibular injury. It is unilateral or bilateral, and if bilateral, is more marked on one side. It is always rotary-horizontal in character. The author attributes it to a decomposition between the two vestibular systems. Bilateral nystagmus to the two sides is often seen in normal persons, but is always of the purely horizontal type, always equal in intensity, not associated with vertigo, and never influenced by the head movements test. The author has been unable to formulate any rule for the direction of the vestibular nystagmus in his cases.

Disturbances in the pointing reaction were present in twenty-eight of forty-two cases and constitute a part of the spontaneous vestibular symptoms which occur after damage to the vestibular system. Not much reliance can be placed upon them in deciding which side is involved. This is true also of the falling and Romberg reaction.

The irritability of the labyrinth to caloric stimulation was studied in thirty cases, all of which presented spontaneous labyrinthine symptoms. Normal reactions were found in ten cases, hypo-irritability in eleven cases, and hyper-irritability in nine cases. The irritability of the two sides was equal in twelve cases and unequal in eighteen cases. In the author's opinion, a difference in the irritability of the two sides, in other words, a decompensation between the two labyrinths, is of far more importance in the production of the spontaneous labyrinthine symptoms than hyperirritability or hypo-irritability.

The Rinne reaction was positive in thirty-five cases, negative in one case, and not recorded in six cases. Bone conduction was shortened in twenty-four cases, normal in six and not recorded in twelve. Traumatic deafness caused by injury of the head was found in thirty-one of forty-two cases. Complete deafness in one ear was present in one case. In a large proportion of the cases the defect in the hearing was bilateral, and a large number of the cases showed the upper tone range more affected than the lower and middle ranges. Of the thirty-one patients with defective hearinng, twenty-eight had symptoms referable to the vestibular apparatus

### The Etiology of Glaucoma., Duke-Elder, W. S.: Brit. M. J., 1928, ii, 236.

The first matter to be settled in the problem of intra-ocular pressure is the nature of the processes controlling the formation of the aqueous. The aqueous is not a secretion nor, under normal circumstances, a transudate. It is a dialysate of the capillary blood formed by the same processes as the other tissue fluids. The process is modified, however, by the relative impermea-

bility of the ocular capillaries. The fluid contents of the eye must be kept clear and practically free from colloidal micelles. This is accomplished by making the capillary walls relatively impermeable. A dialysate in equilibrium with its parent fluid must have a very precise and definite chemical composition, osmotic pressure, reaction, electrical potential, and relationship between its hydrostatic pressure and that of the parent fluid. The aqueous in all conditions is in complete thermodynamical equilibrium with the plasma—chemically, osmotically, electrically, and hydrostatically. Its formation is a physicochemical process.

The second fundamental determination to be made in the study of intra-ocular pressure is the nature of the circulation of the aqueous humor. Three factors entering into this are: (1) a continuous metabolic interchange between the aqueous humor and the blood through the capillary walls; (2) internal thermal circulation caused by convection currents in the anterior chamber and, most important, a through-and-through pressure circulation; and (3) the changes in the volume of the contents of the globe which occur in the vitreous.

The vitreous is a gel bathed in aqueous. The main determinant of its volume is the degree of hydration of its colloid particles.

If glaucoma is considered merely as a pressure symptom, the two main factors in its etiology are: (1) a derangement of the capillary circulation involving a capillary dilatation which produces a rise in capillary pressure or increased permeability of the capillary walls which allows an excess of colloids in the fluids of the eye, and (2) changes of a physicochemical nature in the vitreous. These two factors act either alone or together, and their efficiency of the drainage channels in the region of the angle of the iris.

Primary Jugular Bulb Thrombosis, Maybaum, J. L., and Goldman, I. B.: Laryngoscope, 1928, xxxviii, 569.

In primary jugular bulb thrombosis an infected thrombus is formed in the lateral dome of the jugular bulb. In the early stages, the lateral and sigmoid sinuses are not affected. The authors review the clinical aspects of the condition and report nine cases.

Primary jugular bulb thrombosis should be considered in the diagnosis of cases with a history of middle ear suppuration, persisting septic temperature, and septicaemia otherwise unexplained. It occurs most commonly in young children. The temperature ranges from 99 to 104 degrees F. The organism responsible, usually a haemolytic streptococcus, can be easily recovered from the blood stream. Of considerable value in the localizing of the affected sinus is a differential blood culture according to the method of Ottenberg. This technique calls for culture from both internal jugular veins. The number of colonies grown from the culture of the sound side exceeds the number of colonies grown from the blood obtained from the affected side because the obturating thrombus prevents the passage of organism into the systemic circulation.

Prompt surgical interference is imperative. The operation should be done with minimal trauma. Ligation proximal and distal to the thrombus should be done and the sinus curetted and drain-

ed.

In the cases reviewed, operation revealed a sclerosed mastoid and an intact sinus wall which was gray and lusterless and contained an obturating thrombus.

The Pathology of Otosclerosis., Mayer, O.: J. Laryngol. & Otol., 1928, xliii, 843.

The author states that areas of otosclerosis are to be regarded as hyperplasias. This view is based not only on the histological appearance of the foci, but also on their multiplicity and typical and symmetrical localization, the presence of minute islands of atypical tissue (constituting the points of origin in these areas), the simultaneous presence of maldevelopments in the inner ear and other parts of the auditory organ, the general hyperplasia of the temporal bone, the association of the condition with blue selerotics and osteopsathyrosis, Paget's disease, and neurofibroma of the eighth nerve, and the hereditary character of the otosclerosis.

Vasomotor Affections of the Internal Ear., Portmann, G.: J. Laryngol. & Otol., 1928, xliii, 860.

The author states that the angiospasmodic syndrome of the labyrinth includes: (1) tinnitus, (2) deafness, (3) vestibular hyperexcitability, and (4) sympathetic hypertonia.

In addition to this syndrome of arterial resistance or hypertonicity of the labyrinth, there is the syndrome of hypotonia or laxity with the classical signs of the sensorial suffering, but with vestibular hypoexcitability and sympathetic hypotonia.

These two syndromes may alternate with each other. Different reactions of the vegetative system under the influence of various causes may be noted, but as a rule there is a hypertonic or parasympathetic syndrome which makes it possible to classify the subject as a vagotonic or sympathicotonic. In clinics there are seen fairly often persons in whom the disequilibrium seems to be caused by a global hyperexcitability of the vegetative nervous system. This state has been described as "neurotonia (Guillaume), "total disequilibrium of the whole system" (Laignel-Lavastine), "vegetative dystonia" (Sicard), and "amphotonia" (Danielopolu).

However, this vegetative dystonia may occur in persons who are predominantly vagotonic, in others who are predominantly sympathicotonic, and in still others in whom hypertonia predominates over the sympathetic at the level of one organ of the body and the parasympathetic predominates at the level of another organ.

Vagosympathetic disturbances and labyrinthine vascular spasms are due to most diverse causes. The causes may be mechanical, endocranial, toxic, or phychic. The most important factors affecting this regulating apparatus are undoubtedly the action of the nervous system and the action of the endocrine glands.

The Prevention of Nasal Deformities Following the Submucous Operation., Carter, W. W.: Arch. Otolaryngol., 1928, viii, 555.

Submucous resection is the best method yet devised to correct a deflected septum with obstruction. Certain precautions are necessary to guard against deformities. The operation should not be

performed before the eighteenth year of age unless the indications are urgent. As the upper edge of the septum is an mioprtant part of the nasal arch, it must not be dislodged. The free edge of the quadrangular cartilage is an important vertical support. The septum should be removed by means of punch forceps without traction on the dorsal segment. Deformities resulting from this operation are best corrected by a conjoined bone and cartilage graft taken from the patient's ribs. Correction may be made also with bone or cartilage alone.

The article contains several photographs of corrected external deformities.

Intramuscular Injections of Bismuth a Specific Treatment for Vincent's Angina., Rigby, O. C.: Tri-State Med. J., 1928, i, 47.

As infection with the spirochaete of syphilis responds to treatment with arsenicals and also to injections of bismuth, it occurred to the author that bismuth might be equally effective against the spirochaete of Vincent's angina.

He first made a local application of 10 per cent acid tartobismuthate of potassium. The result was good. In December, 1926, he first injected 0.02 gm. of potassium bismuth tartrate with butyn. The injection was followed by permanent relief of the symptoms. The membrane disappeared and the smears became negative after twenty-four hours.

Rigby reports sixteen other cases with good results. In all, the smears were positive before the treatment and the symptoms ceased and the smears became negative within from twenty-four to forty-eight hours after the injection. The injection was made into the gluteal muscle. No local treatment was given.

The author states that a number of other physicians have had equally good results from this treatment, no failures being reported. The throat lesions apparently respond more satisfactorily than the infection of the gums.

#### UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D 1010 Medical Arts Building, Oklahoma City

#### A TREATMENT FOR CHANCROID

Rosenwald's method as abstracted by Brewer follows, the one thing of course to be dreaded in this line of treatment is the bubo, Rosenwald reports little trouble with them in the early stage. If there is as little trouble later, the time when most of us see them and it will shorten the time as reported. This method will be a great help.

A comparative study of 221 cases of undoubted

A comparative study of 221 cases of undoubted chancroids shows under Rosenwald's method, a saving of 50 per cent in the days per man necessary to effect a cure.

Rosenwald's method for treatment is specific, easy, well within the province of the general practitioner, and can be compounded by anyone.

Two preparations are used:

#### Rosenwald's Suspension

Calomel	1	oz
Zinc Sulphate	2	oz.
Tinc. Opium, Camphorated	2	oz.
		oz.

Measure drugs by volume, not by weight. Mix the calomel and lime water in a glass stoppered bottle. Shake thoroughly several times a day for two days. Add the other ingredients, shake, and the solution is ready for use. It will keep indefinitely.

#### Rosenwald's Ointment

Zinc Oxide	1	oz.
Starch	1	oz.
Boric Acid	1	oz.
Gum Champhor	1	oz.
Carbolated Vaseline, 3%	12	oz.

Measure drugs by weight and make an ointment.

Treatment is carried on in the following manner: Clean the chancroidal ulcer gently. Take a thin piece of cotton, of a size sufficient to cover the lesion and vicinity, hold it over the mouth of the bottle of suspension and shake. Be sure the cotton is well moistened and covered with a film of the insoluble portion of the mixture. Place this upon the ulcer and pull down the prepuce to hold it in place. Leave this on for one day and then remove. Substitute a thin piece of cotton covered with ointment. Change this daily.

After the application of the solution the diseased tissue shows a bluish green coagulum, which separates from the sound flesh. In a day or two the dead tissue comes out leaving a clean wound which heals rapidly. Due to early sterilization of the ulcer, bubos are not encountered in early infections.

This treatment is as effective in treatment of chancroids in women, especially where the lesion is within the vaginal tract.

# CLIPPINGS FROM UROLOGIC AND CUTANEOUS REVIEW

Most varicoceles are best treated by being let alone.

A negative Wassermann does not always mean a cured syphilis.

Let tabetic bladders alone as long as you can. They are easily infected.

Try sodium iodide intravenously in beginning spur formation as a result of gonococcal infection.

Open lesions or scars of healed ones over the tibia are highly suspicious of an old syphilitic infection.

Bismuth has been found of much value in the syphilits of young children who do not tolerate the arsenicals well.

In giving salvarsan injections do not use needles with any rust on them. Such needles leave telltale tattoo marks behind.

In the treatment of urinary extravasation there are two cardinal rules to follow: Divert the urine and lay open widely all extravasated areas.

Syphilitic disease of the heart with aortic insufficiency may cause death during the course of an anesthesia. It may also cause sudden death at any time.

Never remove any tumor of the scrotum until iodide of potash has been given in large dosage. Now and then these tumors disappear under such treatment.

Patients complain because their doctors give them scant information about their ailments, but it is a curious fact that the most successful doctors tell their patients the least.

In the acute renal infections of pregnant women be sure to try lavage of the renal pelvis and leave in the catheter for continued drainage, before inducing premature labor. Many women go through these crises nicely with this plan of treatment.

Conservatism in renal surgery is well worth cultivating. Many a kidney which at first examination seems to demand radical surgery will make a satisfactory response to well directed, patient endeavor of a conservative character. In recent years the absolute indications for radical renal surgery have been materially reduced.

It is to be deplored that ulceration, induration and renal adenitis do not immediately suggest chancre to every physician. All patients presenting this type of lesion should have a dark-field examination at once. By this procedure a positive diagnosis can usually be made long before the blood becomes positive or secondaries make their appearance.

### IS DIRECT TRANSMISSIONS OF SYPHILIS FROM FATHER TO FETUS PROVED?

Johan Amnkvist believes that paternal participation in the infection of the fetus with lues is not impossible although it has not been definitely proved. In the author's series of 87 mothers who bore syphilitic children, 28 knew nothing of any luetic infection. In 23 of these cases, signs of syphilis were found, but in five there was no evidence of luetic infection-either clinical or serological. One of the latter cases was particularly interesting. Fourteen years ago this woman bore a 2950 gram child which presented a marked papular syphilitic exanthem and positive Wassermann. Clinical and serological investigations of the mother showed no evidence of lues. During the next fourteen years this woman was investigated serologically 36 times, always with negative results. In June, 1925, ten and a half years after the birth of the syphilitic child, she borne another child, having married another man. This child was quite healthy and free from all signs of lues, as was the mother. The author sees in this case a very probable evidence of paternal participation in the infection of the first child.

### EFFECTS OF ALCOHOL ON BLOOD WASSERMANN

It is frequently stated that the ingestion of several ounces of alcoholic liquor will cause a positive blood Wassermann to become negative if the examination is made within 24 hours. If we assume that the patient's statement regarding the alcohol was true, this case proves at least that there are exceptions to the rule.

#### PYURIA IN INFANTS

According to Boddin, pyuria during infancy is not so much a disease as it is a symptom. This symptom may be due to various disturbances in the urinary passage, such as suppurative nephritis, congenital deformities, renal tuberculosis and the formation of stones in the pelvis of the kidney, ureter or bladder. The author gives a detailed report of one case. An infant, aged 5 months, was brought to the hospital appearing pale and weighing only a little more than at birth. Edema of the feet, hands and face were present. Later it also appeared in the region of the kidneys and in the genitalia. A few days later the child died. The post mortem examination revealed hemorrhagic suppurative nephritis, enlargement of the ureter, petechial hemorrhages in the trigon of the bladder, anemia, fatty degeneration of the liver and dropsy. The case was remarkable because the examination of the urine did not reveal the hemorrhagic inflammatory character of the disease. For this reason the case had been diagnosed pyuria, in spite of the fact that the edema indicated nephritis.

#### ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D 717 North Robinson Street, Oklahoma City.

Giant-Celled Tumor of the Neck of the Femur. Operation With Probable Cure. W. G. Turner. Can. Med. Assn. J., XIX, 342, (Sept.) 1928.

The patient was a nurse who was able to do her work until March, 1924. At that time she complained of pain and weakness in the right hip joint. At this time, there was some tenderness of the joint. The X-ray showed some rarefaction of the neck of the femur; but there was full movement.

In August, 1924, a pathological fracture occurred while the patient was turning over in bed.

On December 26, 1924, the hip joint was opened. The neck of the femur was found to consist of a soft shell from the acetabular rim well down to the trochanter, the fracture being felt about the middle of it. A flap of this shell was reflected, and the contents were found to be of a jelly-like consistency. This material was spooned out and the lining found to be smooth, except at each end. The ilium was exposed and a number of bone slivers chiselled off and packed into the cavity.

In March, 1925, a swelling was found below the trochanter. This was exposed and cleaned out.

An X-ray taken June, 1927, shows strong bone and moderate coxa vara.

Pathological examination of each specimen showed typical giant-celled tumor.

In June, 1928, the patient walked without pain, with slight limp and full range of movement, and could do a full day's work.

#### TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

Conservative Operative Treatment of Tuberculosis Arthritis. P. P. Vreden, Orthopedia i Travmatologia, V-VI, 10, 1927.

The treatment of tuberculosis arthritis, either conservative or radical, is not always satisfactory. A new method is being introduced at present which seems to be more promising. The originator of this method was Calot, the principle of it is a transformation of the cold, torpid, ischaemic tuberculosis process into an acute sterile one. He used injections of naphthol camphor into the tuberculosis focus.

The next step in this direction was the surgical procedure proposed by Dupuis de Frenelle and Robertson Lavalle's method and proposes the following surgical procedure: Through a small incision of the skin a long narrow gauge is introduced and driven through one and the other articular extremities until it fixes the joint. A graft is then taken from the crista tibiae together with the periosteum; the length of it is equal to the part of the gauge driven into the joint. The gauge is removed and the graft is inserted in the previously made canal. The skin is sutured with one suture. A plaster cast is applied for from four to six weeks. In cases with muscular spasm, a stretching can be made while the patient is under anaesthesia. The presence of sinuses and even free pus in the joint does not constitute a contraindication.

The immediate result of the operation is an acute local reaction with complete disappearance of pain and reestablishment of motion in about two months after operation.

The Treatment of Tuberculosis by Heliotherapy. Horace I. Grasso. Radiology, XI, 217, (Sept.) 1928.

The beneficial results obtained in treating cases of surgical tuberculosis at the J. N. Adams Memorial Hospital and other institutions where heliotherapy is practiced, have far surpassed anything ever accomplished by the use of surgery.

Essentially, the treatment used is patterned by Rollier with some modifications. Exposure should be made in open air, with nothing to interrupt the sun's rays. South porches, screened against prevailing winds, are best. The whole body, with the exception of the head, should eventually be irradiated at one time for proper treatment. The initial treatment consists of five minutes' irradiation of the feet, repeated three times during the day. The irradiation is then extended, five minutes being added daily to the isolation period of each previously exposed area. A suitable maximum is three hours, an hour and a half, morning and afternoon.

The method of sun-cure dosage in terms of hours and minutes is open to severe criticism, so during the past two years a more rational system of dosage, based on sunlight intensity, has been adopted. As a rule, the patient's tolerance of sunlight can be estimated from the pigmentation of the skin. Contrary to general opinion the author believes that sunlight judicially applied in pulmonary as in surgical tuberculosis, particularly so in hydropneumothorax and pyopneumothorax

cases. He also condemns the use of artificial light substitution for heliotherapy, although he admits the value of lamps during the cloudy season. Without the tonic effect of moving air on the naked body, regular hours, suitable diet, and above all, rest, light rays are robbed of much of their beneficial action.

Extensive statistics covering the 1160 patients discharged, up to January 1, 1927, with extra-pulmonary tuberculosis are quoted. Of the 355 cases of tuberculosis of bones and joints: 198 or 55.8 per cent were discharged as apparently recovered; 85 or 23.9 per cent were discharged as arrested; 34 or 9 per cent were discharged as improved; 24 or 6.8 per cent were discharged as unimproved; and 14 or 4 per cent died.

No patient who had been confined to bed was discharged apparently recovered, until he had been up and about for at least six months, if the lesion was in a bone or joint.

Two Cases of Chronic Deforming Arthritis Due to Hereditary Syphilis. L. Ricciardi, Pediatria, XXXVI, 395, (Apr.), 1928.

The author reviews briefly the rich nomenclature of the articular alterations of infancy and recognizes the obscurity of the clinical picture of the chronic arthropathies due to the scarce knowledge of the etio-pathogenic factors of the disease. He then illustrates two cases of deforming rheumatism of luetic nature, in which the articular manifestations appeared late. He cites the belief of various authors regarding luetic arthropathies and illustrates the clinical picture, recalling the Fournier held that thirty-nine percent of hereditary luetics became subject to articular syphilis, while von Huppel, Stein, and others consider the percentage to be fifty-six percent. Hydroarthrosis manifests itself very frequently between the ages of eight and fifteen years. The author closes with the conclusion that chronic deforming rheumatism of infancy is often due to hereditary lues, but having onset, symptomatology, and evolution like other forms, it is necessary to establish at the earliest possible moment its nature, in order to intervene energetically with specific treatment, it thus being possible to avoid deformities.

Tuberculous Cervical Adenitis. Richard H. Miller and William M. Shedden. The American Review of Tuberculosis. May, 1929.

"Tuberculous lymph nodes of the neck constitute a focus of disease which, early in its existence, may set free tubercle baccilli that are carried about the body, resulting in a mild bacteriaemia. The bacilli may come to rest anywhere in the body, and may give rise to later secondary loci of disease. The bacilli may also extend from the originally infected nodes and invade contiguous ones, finally involving most of those on one or both sides of the neck. Anything which builds up and improves the patient's general condition, such as rest, hygiene and heliotherapy, increases his power to combat the original infection and also to overcome its possible secondary manifestations. Ultraviolet light is a valuable factor in building up local resistance, and it is particularly valuable in its good effect in the healing of sinuses; it does not seem to have much effect on lymph nodes of any considerable size. The Roentgen ray is, as Hanford has shown, very valuable and must be accepted as an important method of treatment. Tuberculin is of doubtful effectiveness, but seems to help in some cases.

"It seems to us that any form of treatment which is directed against the swollen lymph nodes, and fails to take into consideration the fact that the nodes contain living bacilli, which have been, may at the present time be, and probably will in the future be set free into the general circulation, is losing sight of the most important fact in the whole condition. In addition to the cases reported in this paper, we have seen and followed hundreds of cases of tuberculous cervical adenitis, and we are impressed with the number of those which present distant lesions in the body, to say nothing of the deaths, secondary to lymph nodes in the neck."

"We therefore wish to go on record as believing that in a considerable number of cases of early tuberculous cervical adenitis, whether in children or adults, and often in cases of longer duration in which operation is technically feasible, radical surgical operation is the method of choice. We do not fear the possibility of scars, because in the hands of a good surgeon they are not as bad as they used to be, they can be improved by a simple cosmetic operation, and we prefer a scar in the neck to later tuberculosis of the eye or the lungs. The operation must be supplemented with all the supportive and palliative measures which may be used."

#### BOOK REVIEWS

The Nose, Throat and Ear and Their Diseases: In original contributions by American and European Authors. Edited by Chevalier Jackson, M.D., Professor of Bronchoscopy and Esophagoscopy in the University of Pennsylvania, in the Jefferson Medical College, and in the Graduate School, University of Pennsylvania, and George M. Coates, M.D., Professor of Otology, Graduate School, University of Pennsylvania. Assisted by Chevalier L. Jackson, M.D., Assistant in Bronchoscopy and Esophagoscopy, University of Pennsylvania. Octtavo volume of 1177 pages with 657 illustrations and 27 inserts in colors. Philadelphia and London. W. B. Saunders Company, 1929. Cloth, \$13.00 net.

This is a beautiful work. Chevalier Jackson and his associates are authorities on bronchoscopic work. This volume is unusal in that it is composed largely of contributions from the leading American authorities of affections of the nose, throat and ear. It is divided into six parts, each part of many chapters, each chapter signed by the contributing author. The references quoted are voluminous, which the authors state will lead one as far afield as he may wish to go. This work is highly commended to the physician interested in the diseases of the Eye, Ear, Nose and Throat.

The Writing of Medical Papers. By Maud H. Mellish-Wilson, Editor of the Mayo Clinic Publications. Third Edition, Revised. 12mo of 184 pages. Philadelphia and London. W. B. Saunders Company, 1929. Cloth, \$1.50 net.

This little volume is recommended to everyone contemplating the preparation of medical articles. For years Mrs. Mellish has been the Mayo authority on such matters.

Surgical Pathology. By William Boyd, M.D., Professor of Pathology, University of Manitoba, Winnipeg Canada. Second Edition, Revised and Reset. Octavo of 933 pages, with 474 illustrations and 15 colored plates. Philadelphia and London: W. B. Saunders Company, March 1929. Cloth, \$11.00 net.

This is a most readable work on the very wide field of surgical pathology. The text, the illustrations and the conclusions are based upon knowledge acquired from the built up surgical experience and findings of years past. It will be found most useful to those engaged in surgical work.

Diseases of the Thyroid Gland, by Dr. Arthur E. Hertzler, M. D., Surgeon to the Halstead Hospital, Kansas City, with a chapter on Hospital Management of Goiter Patients by Dr. Victor E. Chesky, M.D., Assistant Surgeon to the Halstead Hospital. Second Addition, entirely re-written. Cloth, illustrated, 286 pages. Price, \$7.50, 1929. C. V. Mosby Co., St Louis.

The former issue of Professor Hertzler's work on the Thyroid Gland was popular and well received. This work will be no exception to its predecessor.

Clinical Electrocardiograms; Their Interpretation & Significance by Frederick A. Willius, M.D. Section on Cardiology, The Mayo Clinic, Rochester, Minnesota, and Associate Professor of Medicine, The Mayo Foundation, University of Minnesota. Quarto of 219 pages with 368 illustrations. Philadelphia and London: W. B. Saunders Co., 1929. Cloth \$8.00.

Electrocardiographic work is becomming of great importance to the internist and those who specialize in infections of the heart. This book presents the subject in a graphic manner and the text is devoted to the subject of reading records themselves and interpreting their significance.

Modern Methods of Treatment, by Dr. Logan Clendening, M.D., Associate Professor of Medicine, Lecturer on Therapeutics, Medical Department of the University of Kansas, Attending Physician Kansas City General Hospital, Physician to St. Luke's Hospital, Kansas City, Missouri, with pages on several subjects by various collaborators, second edition, illustrated, cloth, 815 pages, Price \$10.00. C V Mosby, St Louis.

Dr. Clendening's work on Modern Methods of Treatment will be well received. It will be found of unusual worth to the general practitioner having the responsibility of direction of treatment including medication, diet, and adjuncts. A great deal of attention is paid to the field of various therapeutic measures and to the subject of dietetics.

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BY RAY M. BALYEAT, M.A., M.D., F.A.C.P., INSTRUCTOR IN MEDICINE IN THE UNIVERSITY OF OKLAHOMA MEDICAL SCHOOL, DIRECTOR OF THE BALYEAT HAY FEVER AND ASTHMA CLINIC, OKLAHOMA CITY



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GROSS OPHTHALMOLOGICAL FIND-INGS IN TWELVE HUNDRED AND FIFTY-NINE PATIENTS AT THE CENTRAL OKLAHOMA STATE HOS-PITAL, WITH OTHER NOTATIONS

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For sometime it has been felt that we have been neglecting a rather important field in that we have not made as careful an examination of incoming patients as we might as this relates to the eyes, the accessory sinuses, the nose, throat and teeth. The examination of the eyes chronicled here is a step in the direction of obtaining information which might be of value in diagnosis as well as in treatment. This report is not meant to be an extensive study as time would not permit. It has been more in the way of an effort to orientate ourselves as to the present status of our patients in respect particularly to the eyes.

Conditions which were expected to be prominent have not been found so and others have been more frequently found than had been expected. In the epileptic patient, for instance, due to the terrific intraocular strain supposed to be present, and from the fact that a great many have paralysis, it had been expected to find a great many hemorrhagic areas and other evidences of pressure. Such seemed not the case, as the incidence does not seem to be above that for all patients of corresponding age. Also considering the rather large number of neurosyphilitic patients and the intensive treatment to which quite a few are subjected, a larger number might have been expected to show either disease pathology or pathology due to the purported and reported influences of the arsenicals on the eye structure.

A short discussion of some of the phases under several groupings will be made. The fundus was considered normal when it could be seen distinctly and no pathology of the intraocular system could be noted by a view which covered as much of the fundus as possible.

Haziness of the cornea, or lenticular or vitreous obstruction occasionally prevented perfect sight of the retina, and in such cases the actual condition was tabulated and the fundus was not registered as normal, although it might have been. The retinal findings are probably the most difficult to interpret, because of the closely interwoven association with the choroid. In those cases in which the changes were in front of or among the retinal vessels it was safe to assume that a retinal change had occurred. But when the condition was of long standing and color changes were marked, it was at times doubtful as to whether or not it was due to old hemorrhage or to choroid disturbances. The terms used in the tabulation are more or less descriptive. The word "flash" occurs in the literature and refers to a condition in which the elements are arranged as if they had been scattered by a flash or splash.

The choroid was considered the seat of the pathology in practically every case in which a dark, especially a solid dark color, was dominant, or in which the retinal ves sels were distinctly to the fore.

In many cases in which a faulty view, or no view at all was to be had of the fundus, the cornea was found to be at fault, presenting various lesions, such as haziness, or leucomas. Arcus senilis is present more frequently than the tabulation indicates, the insufficient light preventing a discovery of all but the more apparent cases.

Some inflammation of the conjunctivae was found in a few cases. The old trachomatous cases, if they could properly be classified as conjunctival disturbances, are discussed under the classification of the lids.

The examiner was impressed by the large number of cases in which there was a tortuosity of the retinal arteries, one or more. Those which are recorded as tortu-

ous seemed to the examiner to warrant the characterization, abnormal, although there has been quite a bit of discussion as to the significance of these arterial aberations and meanderings. Marcus Gunn believed that "undue tortuosity of the vessels is not significant unless associated with other evidence of disease", while DeSchweinitz gives undue tortuosity as one of the alterations in the retinal vessels caused by chronic nephritis and general arterio sclerosis. It seems that an early diagnosis of cerebral arterial tension or sclerosis is desirable, from the fact that we have quite a number of apoplectic patients showing up at an early age, and in whom under the routine examination, no sufficient pathology is found to put us on guard. A condition which seemed more than a coincidence was, that in every case in which old hemorrhagic areas were present, there was either moderate or marked tortuosity of one or more retinal vessels in the neighborhood of the hemorrhage.

The pupils were tabulated as irregular, unequal and undilated. Their condition had been noted before examination, and as a mydriatic had been used, it is evident that only the irregularity of the pupil should be considered pathologic as there might have been uncertainity about the administration or action of the mydriatic which could account for the inequalities or the failure to dilate.

Mild to cataractous changes in the lenses were noted, the former in sixty-three eyes, the latter in twenty. Of course the larger number were observed in the elderly patients. Some of these could very well be operated upon to advantage.

The number of cases showing lesions of the iris were negligible as to number, but two presented interesting features.

Only one synechium was found, this of the posterior type. It is possible that adhesions of the lens to the iris could have been responsible for some of the failures of the pupil to dilate.

Opacities in the vitreous, either stationary or floating, were not as numerous as one might expect to find, and there is of course the likelihood that some were not detected.

Some of the conditions of the optic nerve as tabulated are not pathological, but were mentioned so that later observations might be made if it were desired. Not as many cases of choked disc were found as expected and the ones found were not prominent. Atrophy or beginning atrophy was in just about the same percentage.

Not enough time was given to each examination to determine the exact condition in the aqueous chambers, but one or two cases were interesting and one is here presented.

Under the head of muscular disturbances, the squints have been placed, although there is room for debate of such a classification. Worth in his monograph on squint, very strongly favors the view that most divergencies are due to faulty fusion sense in the brain and not to muscular imbalance or even to refractive errors, both of which conditions, either singly or combined, have been given credit for the deviations, excepting of course, the frank organic lesions

Blindness believed to have been caused by disease was found in seven eyes. Injury was the cause assigned in six.

Nystagmus is noted in only one case, but careful search will reveal another case or two I am confident.

A few conditions of the lids were found, but by no means does the table show the total number here, but rather, tends to emphasize the value of a systematic and thorough examination of the incoming patient. Old trachomatous lesions possibly account for more everted lids than any other one thing, but I have hesitated in classifying any as trachoma, because I feel that that is a hazardous diagnosis without it is thoroughly worked out.

Myopia of such degree as to make the fundus indistinct without the use of several diopters of minus correction were considered. No effort was made to get the exact correction.

Some other conditions are named, few in number, and possibly not representing the entire number of cases of each here.

A rather large number of patients showed such lack of cooperation that a reasonably satisfactory examination was not possible. This class of eighty is not included in the twelve hundred and fifty-nine cases.

#### RECAPITULATION

Twelve hundred and fifty-nine patients were recently examined, with the ophthalmoscope, in practically all cases, following a mydriatic. The object was primarily for the purpose of making a survey of eye conditions which might be of advantage in diagnosis or treatment.

Expected conditions have not been so numerous, while less expected conditions have been frequently found.

Undue tortuosity of the retinal arteries and its incidence among young and middle aged patients was especially noticeable. Most available opinion holds that this condition is not of particular value as evidence of arteriosclerosis or hypertension.

	nee of difference of my p	0.D	
1.	Fundus Normal—	964	O.S. 940
2.	Retina— Flash	2	1
	Gray Infiltration	4	4
	Edema	24	30
	Spots	2	3
	Atrophy		1
	PlaqueInflammation	1.77	1
	Albuminuric Retinitis	17 1	9
3.		1	1
٥,	Choroid— Spots	0	
	Spots Hemorrhagic areas	3	4
	Phys. Increase	13 1	3
4.		1	
4.	Cornea— Marked Astygmatism	1	
	Haziness	1 8	9
	Arcus Senilis	9	9
	Leucoma	7	9
	Keratoconus	•	1
	Ulcers	1	
5.	Conjunctiva—		
	Inflammation	2	1
	Pterygium	9	7
6.	Vascular—		
	Angioid streaks	1	
	Anomalies	7	7
	Slight tortuosity	89	105
	Moderate tortuosity	12	12
	Marked tortuosity	12	15
	Compressions of veins	7	7
	Atrophy of vessels Very small aneurysm	1	1
	Enlarged veins	3	1
7.	Pupils—		_
1.	Irregular	4	1
	Unequal	2	2
	Not dilated	5	$\frac{1}{2}$
8.	Lens—		
0.	Changes	28	35
	Posterior synechia	20	1
	Cataract	13	7
9.	Iris—		
υ.	Coloboma		1
	Iridiremia		1
10.	Vitreous—		
10.	Opacities		4
	Floaters —		2
11.			
11.	Optic Nerve— Bright	1	
	Fullness	1	1
	Inflammation	2	1
	Eliptoid	2	2
	Papilledema	1	

	Atrophy	4 2 7 3 7	4 4 8 4 8
12.	Aqueous Chambers— Anterior deep Tremulous	1 1	1 1
13.	Muscles— Internal squint External squint Concomitant squint	2 5 6	5 3 5
14.	Amaurosis— Injury Disease	2 6	4
15.	Nystagmus—	1	
16.	Lids— Trachoma Chalazion Inverted Everted Injury	1 1 1 1 2	1 1 1 1 1
17.	Other conditions— Undeveloped	1 1 2 80 10	1 2 80 4

#### RECURRENT RETINAL HEM-ORRHAGE\*

# J. J. CAVINESS, M.D. OKLAHOMA CITY

While the topic for discussion is *recurrent* retinal hemorrhage, it is necessary to consider the subject of retinal hemorrhage as a whole. There is no distinct line of demarkation as far as etiology is concerned.

We are able to classify only as to location, depth in the tissue and to give in many instances the associated general diseases, but as to the exact etiological factor, we are as yet unable to understand clearly the cause of retinal hemorrhage.

The classification of Foster Moore on etiology of retinal hemorrhage is, I think a good one as it briefly covers the pathological conditions of the body that we find associated with hemorrhages in the retina.

1. Diseases of metabolism Renal disease Diabetes Scurvy

Severe anemias

2. Diseases of the haematopoietic system
Arteriosclerosis

\*Read before Annual Meeting Oklahoma State Medical Association, Oklahoma City, May 28, 1929. Leukemia Infective endocarditis Vaquez's disease Hemophilia

3. Obstruction of the venous outflow Thrombosis of the central veins Thrombosis of the cavernous sinus Subarachnoid hemorrhage Papilloedema During birth

To these we must add syphilis, tuberculosis and focal infection.

These various diseases will not be discussed for they are all familiar to you, neither will it be necessary to enter discussion as to differentiation of the various types of hemorrhages.

Just why we have retinal hemorrhages in some cases and do not in others of apparently similar fundi is not clear.

What happens to the vessel at the time of bleeding, is it a rupture of the vessel wall, a passage of the blood constituents through temporarily injured wall or both? In the larger hemorrhages, of course, it is apparent that there has been a rupture and probably in a vessel of some size, although the exact location and vessel involved may not be found and in most instances is not.

Kroh has shown that the capillaries are not cabable of passive dilitation or narrowing but that contractile cells (Rouget cells) surround the vessels and that these are under control of the nervous system making possible contraction and dilitation of the vessels. He shows by experiment that the vessel is impervious to the passage of foreign substance many times smaller than red blood cells while at the same time there is a free interchange of the fluid constituents from vessel to tissue and vice versa. The cells do not under normal conditions pass out into the tissues.

That there is some toxin circulating in the blood stream which interferes with the integrity of the vessel wall causing a passage of the cells into the tissues or a rupture in the vessel is probable. That the toxin is not the same in every case is taken for granted.

One of the most interesting types of retinal hemorrhage and one that differs in many respects from others, is recurrent retinal hemorrhage. This, in practically all cases reported, comes in young male adults.

Just why we have this predisposition to spontaneous hemorrhage into the retina in young men is not known, it is a fact, however, that it seldom occurs in women.

It was first described by Von Graefe in 1854.

In 1880, Eales described the symptoms and course of recurrent retinal hemorrhage, his cases occuring in males between the ages of fourteen and twenty, and most of these cases gave a history of epistaxis. Panas mentioned the condition as ocular epistaxis.

The hemorrhages come on suddenly in fundi of apparently normal subjects, the patients, in many cases, are strong, robust and active and in whom we are unable to find any definite causative factor. The hemorrhages may be single massive ones or repeated many times at short intervals until the eye in many instances is lost.

Blood pressure does not seem to have any influence in the production of this type of hemorrhage, some of the worst cases coming in patients with a normal or even low blood pressure. Exercise apparently has no bearing, as these patients may have the first hemorrhage when quiet, or, on being put to bed after the first attack will have repeated hemorrhages. Ocular tension is thought not to influence, neither does hemophilia appear to be a direct cause.

Some endocrine dysfunction may be a contributing factor and this might account for the preponderence of cases in males.

Syphilis must be considered, but in most cases it is not found.

It is highly possible that focal infection may play a part in the production, but if so, the absence of involvement elsewhere in the body would suggest that it be an infection to which the eye is peculiarly susceptible.

Noll, in 1908, was the first to suggest tuberculosis of the retinal vessels as a cause of this type of hemorrhage.

Finoff, in 1912, in an article says: "Tuberculosis of the retinal vessels is a common cause", and thinks the veins are particularly involved. He reported several cases in which the patient either had an active tuberculosis or a positive focal reaction in the eye. Many other writers have reported cases that were due to tuberculosis and many have cleared up or improved under tubercular treatment. Many

of these cases were patients in whom no active lesion had been found elsewhere.

Our late statistics tell us that tuberculosis is twice as prevalent in young women as in men. If this be true, it would seem reasonable to suppose that if this type hemorrhage be due to tuberculosis that we would find it as often or more so in young men.

That the etiology is not clear is evident when one sees so many possible causes mentioned by various writers.

The prognosis, in this class of cases, is poor, both eyes often being involved and vision markedly diminished, the hemorrhages may continue over long periods of time and treatment in most cases is unsatisfactory.

Having recently seen two cases of recurrent retinal hemorrhage, both in young men, for which no cause could be found, it occurred to me that it would be an interesting subject to bring before the section, mainly for the discussion it might bring out.

#### CASE REPORTS

Paul, V. C., white, male, age 32, was first seen September 25, 1927, at which time he complained of slight blurring of vision in right eye.

Family history negative, both parents living and well. Has three brothers and two sisters, all living and well.

Past History: Had measles at age 6, no other diseases of childhood, he has always been well. Tonsils removed in 1918, while in the army, at which time he had slight arthritis in ankles. In 1925, had a recurrence of the arthritis lasting three weeks; there was slight swelling of ankles at this time. Since that time has had no illness of any kind.

Present Illness: On August 16, 1927, while going home after an unusually hard day's work, noticed slight blurring in right eye, vision however, he says was good, was not examined at that time.

Patient first consulted me on September 25, 1927, thinking he needed glasses. Vision was 20-20 right and left, external examination negative, tension normal, media clear and fundus examination negative. Vision fields were normal for form and color. No scotomata. No furthur examination was made at that time.

November 26th, while attending a football game he had a sudden loss of vision in the right eye. I saw him on November 27 with findings as follows:

Right eye pupil normal, tension normal, large hemorrhage into the retina and vitreous. It was impossible to see clearly, the fundus, but it was thought that a detachment of the retina could be made out in the lower part. Vision was limited to counting fingers at three feet.

Left eye was carefully searched for pathology, but none was found.

Vision in left eye 20-20.

He was given careful general examination.

Skin and mucus membrane normal, head and neck normal, no enlargement of thyroid, nose and throat and teeth negative, tonsils were removed, chest negative. Heart: pulse rate slightly rapid, no thrills, no murmurs.

Blood pressure systolic 122, diastolic 84. Abdomen negative, stomach negative, urine, blood and blood Wassermann tests negative, genitalia negative, no scars or discharge, no history of venereal disease or luetic infection. Rectum negative, the coagulation time was normal.

He was examined again in February, 1928. The right eye was about the same. The fundus could be seen, but not clearly, and a detachment of retina was present in lower part.

Left eye showed at this time slight dilitations and irregularities along branches of superior temporal retinal artery, there was a mild neuroretinitis and several small retinal and sub-retinal hemorrhages.

March 13th, he was examined at Mayo Clinic with findings practically identical with the above, both as to pathology in fundus and negative general examination.

The only questionable pathology was suspected mild non-venereal prostate infection. He returned home and was examined by Dr. Rex Bolend with a view to treatment of prostate. Dr. Bolend reported a negative prostate.

On August 8th, 1928, he had a retinal hemorrhage in left eye with vision recorded as 6-20. He returned to Mayo Clinic where he remained until October 31st. He had, while there, more than thirty hemorrhages in the left eye. During this time he was repeatedly examined for possible

cause, but none found. In fact there was no pathology to be found outside of the eye.

He was kept in bed and absolutely quiet. Was given injections of gold sodium theo sulphate, 5 to 7 day intervals, from August 10th to October 30th. Six injections of raw milk were given in the buttox. One injection of forty million typhoid bacilli into the vein and this was followed by six hemorrhages in rapid succession.

Treatment was discontinued and he has had no treatment except rest and avoidance of the use of eyes. He has had no hemorrhages since returning home and is in the best of health except for the poor vision.

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### COMPLICATIONS OF ACUTE MASTOIDITIS

MARVIN D. HENLEY, M.D. TULSA

To make an attempt to take up the subject of the complications of acute mastoiditis, with any degree of thoroughness in a short paper is almost impossible.

#### SYMPTOMS

One should assume that he is dealing with the average operated case. The vein may or may not have been exposed; there may or may not have been a perisinus abscess. The first day after the operation, the temperature has been high, perhaps 103 degrees or 104 degrees F., and then has gradually returned to normal. The patient looks well and feels well. The wound is in good condition. Suddenly the temperature rises again to 104 degrees F., or higher.

The temperature often is accompanied by a distinct chill, but in certain cases there is only a chilly sensation or there may be no signs of chill at all. The most striking feature of the temperature is that, although the patient is considerably prostrated, he has a feeling of well being. He cannot believe that he is seriously ill. The following morning the temperature goes down to normal or nearly normal and then rises again in the evening to the same height or even higher.

Some patients have been known to run a temperature as high as 107 degrees F. and eventually get well. The patient may complain of a thick feeling in the neck on the affected side and palpation may show that the muscles are taut and that some of the cervical glands have enlarged. Such signs may be an indication that the thrombus is spreading rapidly down into the jugular vein. If the intermittent temperature is allowed to continue for any length of time, the patient, naturally, will become considerably prostrated and at any time may develop infections of a serious nature in other parts of the body due to the lodgment of infected thrombi.

No definite diagnosis of a sinus thrombosis should be made until every means, both clinical and bacteriological, are used to establish the condition without doubt and until every other condition, such for example, as bronchopneumonia and pyelitis are eliminated. There may be no harm in reopening an operated mastoid wound, but, as this usually has to be done under a general anaesthetic, it certainly does not favor the patient. Moreover, many a sinus has been opened up at such a second operation, found to be normal and an infection of it has taken place as the result of this second operation. Not all patients who run intermittent temperatures, in connection with acute mastoiditis, operated or not operated, have sinus thrombosis, as has been proved in any number of instances in which the patients have gotten well without any operation whatsoever, other than the simple mastoid operation.

Among the chief symptoms of importance in thrombosis of the sigmoid sinus are: vomiting, headache, intermittent temperature, chills or chilly sensations, a positive blood culture, an increased blood count and objective evidence in the vein itself, with mild cerebral and meningeal signs of irritation.

#### **TEMPERATURE**

As has been stated in the previous paragraph, the temperature usually rises suddenly to 104 degrees F., or over, (and the vein or a perisinus abscess was observed) a suspicion of sinus infection may be felt, if this temperature begins after the tenth day. In a number of instances, patients have been perfectly well until that time and no apprehension was felt. In certain cases, patients were ready to leave the hospital. Then suddenly, without any particular reason that could be assigned, the temperature suddenly rose with a chill, and an infection of the sinus was found.

Unfortunately, in a number of cases, the temperature is not typical. The patients, from the time of operation or soon after it, run an irregular temperature for which no definite symptoms are accountable. The wound may show signs of excessive suppuration and may have to be re-opened if it was closed at the time of the original operation. The temperature may never rise above 102 degrees or 103 degrees F., and one will have to depend upon other symptoms to establish the diagnosis. As a rule, such patients do not show very good resistance; or the contrary may be the case and the organism causing the infection may be very virulent. There are seldom any chills or chilly sensations and the patient feels very well except at the time that the rise in temperature occurs. Numerous blood cultures may be negative and it is only after a prolongation of the symptoms, beyond a reasonable length of time, that one feels that an exploratory operation is necessary. On opening up the mastoid and exposing the vein, the surgeon is frequently surprised to find that it is completely thrombosed, sometimes even down beyond the jugular bulb. In fact the thrombus may be so firm that it has kept bacteria from escaping into the blood stream.

#### CHILLS OR CHILLY SENSATION

If the rise in temperature is accompanied by a chill or chilly sensation, there is evidence that there is a bacterial invasion which presumably has come from an infection of the sinus. The chills vary greatly in their intensity and in the time that they last. Some chills last as long as half an hour and are so severe that the patient's teeth chatter and the bed shakes. At other times, they are so mild that they are hardly discernible to the patient. The chill is often repeated with every rise in temperature, but this is not necessarily so. The patient is usually in a burning fever at the time of the chill, and when it is over, is covered with a profuse sweat which soaks his night clothes. There is often severe prostration at the time of the chill.

#### THE VALUE OF BLOOD CULTURE

The increased and more accurate facilities of the laboratory have made it possible for otologists to place more reliance on the findings of the bacteriologist. There

can be no better evidence than in the taking and culturing of the blood. There have been various controversies in the past (and some of these are still going on) as to whether a culture of the blood must always be positive to establish a diagnosis of sinus thrombosis. Leaving this matter aside for the moment, one may state that it is almost axiomatic that a positive culture of the blood, in connection with acute mastoiditis, in which there is associated an irregular temperature, with or without chills, is an indication of an infected or thrombosed vein which should be operated upon as soon as possible. In other words, a positive blood culture means trouble, while a negative culture does not mean there is no trouble. In the event of a negative blood culture, other cultures will have to be taken at regular intervals, preferably at the time when the temperature is at its height.

Drs. Arthur B. Duel and Jonathan Wright report 57 cases treated in the Manhattan Eye and Ear Hospital in which careful blood examinations were made; of the 57 cases a positive bacteriemia was found in 16. Of the 16 positive blood cultures, streptococci was present in 14, pneumococci in 2.

#### THE VALUE OF THE BLOOD COUNT

The blood count must be analyzed in conjunction with the other symptoms. As soon as the temperature has begun to rise, a blood count should be made, and, for comparative purposes, it should be made every day thereafter. In the general run of cases of thrombosis of the sigmoid sinus, the white blood cells seldom increase to over 18,000 but the relative number of polymorphonuclear leucocytes is invariably increased. The percentage may be as high as 85 or 90. If the count be above 18,000, one should look elsewhere for trouble although exceptions always occur. The great value of the count is in those cases where it shows a tendency to be below the normal. This may mean a lowered resistance on the part of the patient, but, as a rule, it means that the temperature is not caused by an extension of the infection from the mastoid wound. It may indicate an intercurrent malaria or typhoid fever or one of those fevers of the protein type.

One should not forget that there are other conditions than sinus thrombosis which may complicate a mastoid condition and produce chills and fever. Among the chief of these are malaria and typhoid fever. But recently a condition known as protein fever has been described. The exact interpretation of this fever on a protein basis has not been established. What we do know is that a patient, after a mastoid operation, runs an irregular temperature, sometimes very high, which cannot be accounted for. After a few days or weeks, it spontaneously subsides. There is no proof of a so-called protein fever but the term may be used to account for a number of these cases which show no definite signs of vein involvement.

The case in point is that of a girl 16 years of age operated on by the author recently. At the time of the first examination both ears had been discharging profusely for 8 or 9 weeks, W.B.C. 27,600 with 87 differential, temperature 101. Roentgenological examination showed extensive destruction of the right mastoid region. Removing the necrosed bone at time of operation necessitated wide exposure of the sinus. Its appearance was blue, shining and pulsating. Two days after operation, the patient began to run a high temperature associated with chills. W.B.C. showed 5,-000, differential 56, blood culture negative. Blood examination revealed the presence of malaria. In other words, although a high blood count may not mean that there is not sinus thrombosis, a low blood count, particularly if it be associated with a negative blood culture, is fairly good evidence that the sinus is not infected.

#### DIFFERENTIAL DIAGNOSIS

Sigmoid sinus thrombosis must be differentiated chiefly from erysipelas, brain abscess, meningitis, and particularly in children, broncho-pneumonia and pyelitis. There are a host of other conditions which may give rise to indefinite, irregular temperatures, and it should be kept in mind that if the mastoid infection has been associated with an influenza, the patient may run an indefinite temperature for a long time after the operation due to the original causative agent.

An erysipelas may develop at any time after the mastoid operation and, until the inflammation shows on the surface, one will often be in doubt as to what is causing the temperature. This is particularly so in the deep-seated erysipelas which takes some time to come to the surface. The chief differential points to be kept in mind are the following: In erysipelas the tempera-

ture is inclined to remain high or be remittent in type, the blood culture is invariably negative, the blood count is extremely high, the patient is much prostrated and sooner or later the characteristic inflammation appears.

As a rule, the infection of erysipelas takes place within a very few days after the mastoid operation. In sinus thrombosis the temperature is intermittent, the blood culture, in most instances, becomes positive after a time, the blood count is seldom above 18,000 white blood cells, the patient is in a condition of euphoria (wellbeing). As a rule, evidences of the infection do not show until the tenth or twelfth day.

Aside from the more favorable avenues of escape through the external cortex, it is clear that pus within the mastoid may travel in various directions, and in accordance with its point of entrance may lead quite logically to different lesions within the cranium. It may perforate the roof, or tegmenantri, giving rise to an extra dural abscess or as a later development of this lesion, to a cerebral abscess or it may travel backward toward the posterior fossa of the skull causing either a perisinus abscess in the neighborhood of the cerebellum or a cerebellar abscess. Passing downward and forward from the mastoid, or downward from the tympanic cavity. the infection may spread directly to the jugular bulb giving rise to a septic lesion within the jugular vein, not clinically distinguishable from a suppurative lesion within the laterial or sigmoid sinus.

The diagnostic differences from brain abscess will be apparent only by an analytical survey of all the symptoms. In brain abscess, the temperature is not characteristically high, there is usually a marked deep-seated, one sided headache and the patient is much prostrated. The blood culture is negative. Lumbar puncture may show clear fluid, under tension, with an increase in the lymphocytes. The blood count may not be very high and show nothing characteristic. Examination of the eve-grounds will frequently show a blurring of the disc or an actual inflammation of the optic nerve.

In meningitis, one usually observes a high temperature which is inclined to remain high instead of becoming intermittent. The blood culture is negative. Lumbar puncture will often show cloudy fluid, under pressure, which, on culture, will reveal the infectious bacteria. There is a marked increase in the leukocytes in the spinal fluid. Other signs of meningitis will develop, such as Kernig's sign, opisthotonos, and so on.

The temperature of bronchopneumonia may be identical with the sinus thrombosis. The differentiation will rest chiefly on the physical signs which are found in the chest. These signs are not always easy to determine, especially if the pneumonia is a central one. As long as the blood culture remains negative, as long as the blood count is extremely high (higher than one would expect with sinus thrombosis) and as long as one finds any signs in the lungs which would make him suspicious of a bronchopneumonia, just so long should he keep away from any operative interference.

The differentiation from pyelitis must rest mainly on the findings in the urine. Pyelitis does not occur often in adults but is more common than is generally supposed in children and for that reason the urine of every child who has been operated upon for mastoiditis should be examined at frequent intervals. The temperature of pyelitis is intermittent, and it may be necessary to obtain a catheterized specimen of urine, particularly in a female child. Microscopic examination will often show a precipitate which is suggestive of pus but the specimen should be sent to a laboratory where it can be properly centrifuged and the sediment examined under the microscope, when characteristic pus cells will be found.

When both mastoids have been operated upon and a temperature suggestive of sinus thrombosis develops, and other symptoms occur, such as a positive blood culture, which will make one sure that there is a general infection from a sinus which must be closed off at once, how is one to tell which is the infected sinus? Which side is to be operated upon?

It will do no harm to the patient to have one jugular vein tied off but the ligation of both will no doubt result in death. Sometimes it is extremely difficult to tell which sinus is causing the trouble. Fortunately, seldom are both sinuses infected at the first operation. Which sinus was the more exposed? On which side was there a perisinus abscess? On which side was the sinus possibly injured? Which mastoid process

looked the more diseased? Which of the mastoid wounds looked as though more infection was present?

All these questions must be answered and then one is often in doubt as to which sinus should be exposed. There are two ways of finding out which sinus is causing the trouble. In the first place, an examination of the eye-ground may be of assistance. On the affected side, the disc will appear blurred or there may be definite signs of an optic neuritis. An eye-specialist should make the examination, as the minutest details may be necessary.

The mastoid cavity which is suspected of causing the trouble, should be opened first and the vein uncapped until one feels assured that there either is or is not trouble there. If the vein shows up blue and with a shining wall and pulsates, the wound should be packed until the other sinus is explored. Almost always a more diseased condition will be found on one side than on the other; or a culture of the blood from one of the sinuses may show the seat of infection.

#### **PROGNOSIS**

As the amount of systemic infection will depend to a great extent upon the rapidity with which the diagnosis is made and on the severity of the infection, the prognosis can only be judged by the symptoms which result after the course of the infection has been eliminated. In certain unoperated cases, in which all the symptoms of sinus thrombosis are present, even a positive blood culture, the patient gets well but there is always a grave question whether there is not a dormant focus of infection present, which will break out at a later period, in the form of infected emboli which will attack the heart or the kidneys. Instances are on record of cases of acute endocarditis, with positive blood cultures. for which no ascertainable cause can be found. On tracing the history carefully, it is found that there has been an old ear suppuration.

On this history only, the mastoid processes have been opened up on the formerly diseased side and the sinus exposed. The sinus has been found to be filled with a clot which, on being removed, showed the same virulent organisms which had been recovered from the flood cultures. And, most amazing of all, the patients have recovered from their streptococcemia and endocarditis after the sinus had been cleaned

out and the jugular vein ligated. In other words, no one can feel assured that the patient, who had infected sinus, ever gets entirely well until the infection is eradicated by proper operation.

What is the prognosis in the cases which are operated upon? If the operation is performed early, before there has been much possibility of a systemic infection devitalizing the patient, or before metastatic abscesses have formed, the prognosis is good. The patient will go through a stormy convalesence. In the beginning he will be very much prostrated and may suffer from a loss of blood sufficient to warrant an intravenous infusion of salt solution or a transfusion of blood. For a few days following the operation, he will often be delirious, due to a great extent, to the alteration in the brain circulation. The temperature often remains high until the bacteria are eliminated entirely from the blood stream, but when it once begins to come down toward normal, it remains down.

The prognosis from then on is extremely favorable. However, when the operation has been delayed, either because the symptoms were not distinct and one could not determine that an operation was definitely necessary, or because the patient or his relatives would not consent to a second operation, until the patient was almost in extremis, the prognosis is very grave. In spite of the most careful operation at a time like this, the infection has gone so far the patient is beyond hope. Or, with the exception of the jugular vein, there are still sufficient bacteria in the system to result in the formation of various metastatic abscesses which may lodge in any part, a joint, the lungs, kidneys, heart, pleura or liver.

Such abscesses will have to be opened if their location warrants it but where the kidneys or the heart has become affected, one must depend upon the most careful nursing and medicinal treatment and then it will be a question whether the patient will ever be in robust health again. However, even under the worst conditions, it is surprising to see how soon all symptoms will disappear after the proper surgical treatment has been instituted.

Statistical tables from various ear hospitals show that the prognosis from sinus thrombosis is extremely grave but these statistics will not apply to patients in private practice who can be watched carefully. With the careful observation of symptoms both before and after the operation upon the sinus, the patient always stands a good chance for recovery and, even when conditions are at the worst, one should never prognosticate a hopeless ending.

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#### COLOBOMA OF IRIS, CONGENITAL\*

#### L. C. KUYRKENDALL, M.D. **MCALESTER**

Gould's medical dictionary gives the following definition for coloboma, "a fissure, especially of parts of the eye." A congenital coloboma of the iris, therefore is a congenital fissure of the iris. This condition may be unilateral or bilateral, complete or incomplete, and the fissure may be wide or narrow. It may be said to be a deficiency in the tissue of the iris, the amount of deficiency determining the shape and degree of the coloboma or altered shape of the pupil. It is practically always found downward in the position of the fetal cleft although it may be either upward, outward or inward. I have never observed one except in the downward position. It is generally supposed to be caused by the failure of the closure of the fetal cleft or an arrest of development.

It is frequently associated with the same kind of defect in the choroid as well as fissures of the eyelids, palate and lips. Microphthalmus and congenital cataract are also said to sometimes be associated with this condition.

This condition being somewhat rare and our textbooks having so little to say on the subject. I have often wondered why more has not been written about the condition. Traumatic as well as artificial coloboma are quite familiar to all of us so I will not take your time with a discussion along that line.

I have seen so few congenital colobomas, I have wondered if possibly some of you have not seen a sufficient number to tell me of your experience as well as ideas of

In the study of any congenital anomaly

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it is essential we know the embryology and anatomy as well as the pathology of the part or parts which are involved, consequently I will review briefly the iris merely to refresh your memory.

The iris is the circular membrane perforated in its center separating the anterior and posterior chambers of the eye, of various colors, depending upon the amount of pigment deposit and is situated immediately behind the cornea and in front of the anterior lens capsule, its periphery alone being attached, the aperture or pupil swinging free and dilating or contracting and excluding or permitting light to enter the eye. The peripheral border springs from the head of the ciliary body and the ligamentum pectinatum "on the anterior surface is seen radially directed wavy lines converging toward the circle of irregular elevations and small depressions (crypts) situated near the pupil; other finer lines are seen extending from this ring to the pupil." (May) A delicate spongy connective tissue stroma containing a great many nerves and vessels, branched pigmented cells and muscle fibers go to make up the structure of the iris. Anteriorly, there is the endothelium, a simple layer of flat polygonal cells. Posteriorly there is the pars iridica retinae and it is covered by the mesenchymal epithelium of the chambers of the eve.

The vessels are the long posterior ciliary arteries from the two branches of the ophthalmic which divide into an upper and lower branch, these then anastamose with the corresponding vessels of the opposite side forming a vascular ring just behind the attached margin of the iris. Branches are given off from this to the ciliary body and iris which pass to the pupillary border, there by anastomasing they form another but much smaller vascular ring. The veins, corresponding to the arteries as just described, communicate with the canal of Schlemn and pass backward to the venae vorticosae.

The nerves are the third, nasal branch of ophtahalmic and sympathetic with some from the plexus in the ciliary body.

Notches in the pupillary border have been described by Levinsohn and Lindberg. There may be several notches in the same eye.

I have seen a few cases where upon first observing the eye what was at first thought to be a heavy deposit of pigment was later found to be the retinal pigment showing through a defect in the iris. Some of these defects were circular, some irregularly round and some were as a hair being placed upon the iris. This condition is not to be confused with polycoria, a condition in which there is a band across the coloboma making two or more pupils.

These spots are found at different places in the iris, some to the nasal, some to the temporal and the majority of them inferior to the pupil. I have not seen any superior to the pupil.

Fuchs, in his textbook of ophthalmology, has the following to say which is the clearest and best description I have been able to find. "Coloboma of the iris is likewise connected with the ocular cleft. The iris grows out from the anterior margin of the secondary ocular vesicle and the redimentary choroid, at a time when the fetal ocular cleft is already closed; hence the iris in no state of its development has a fissure. But when the optic vesicle and the mesodermal tissue covering it suffer a derangement of development at the site of the retinal cleft, it is conceivable that derangements may also take place in the same meridian further forward and in that case may affect the iris. For example, the mesoderm at this spot (vascular lens capsule) may have an unusually solid connection with the mesoderm that forms the envelopes of the eye. A firm band of this sort necessarily prevents the iris from growing forward. This may happen even when the cleft in the retina and choroid has closed completely, so that then a coloboma of the iris is produced without a coexisting coloboma of the choroid."

I wish to report two cases, the family of one does not show transmission of the condition while in the other fifty per cent of the children show coloboma.

Case No. 1.—W. A. G. Married. This man held a very responsible position in that he was secretary to the owner of one of the largest coal companies in Oklahoma. His duties required the use of his eyes many hours each day, yet I am informed by the members of his family (he being deceased) that although he was refracted many times he at no time was able to obtain glasses that would benefit him. He had bilateral inferior coloboma complete. The iris was light blue in color. His past history was negative. Family history: Has two daughters and one son, all of whom are

grown and unmarried. Neither of these have any signs of coloboma, their vision is normal. Had three sisters, one half brother and three half sisters, none of whom had coloboma. The parents and grandparents on both sides as well as uncles, aunts and cousins were free of coloboma.

Case No. 2.—W. A. E. Married. Occupation, real estate and insurance. Up until the time of this man's death a year or two ago, his distance vision was good but he was compelled to wear glasses for reading. He had bilateral complete coloboma, inferior.

I tried to get his personal history but he knew nothing of his family, as he left home at a very early age. He claims to have received his coloboma by having a horse fall with him in a race when he was about 14 years old, claiming to have received an extremely hard fall at that time hurting his head.

He was the father of six children, three boys and three girls. Three, or fifty percent of the children have this defect, the other three not having it. The children in the order of their birth are as follows: J. (f) no coloboma. Mrs. S. (f) yes, left eye complete coloboma, right normal. Has one child which does not have coloboma. Lef (m) no coloboma. W. (m) yes, left complete, with an incomplete coloboma of right which appears as a thinning of the iris. R. (m) yes, left complete, right has no coloboma. M. (f) no coloboma.

Each one of the five mentioned above have their coloboma in the inferior quadrant of the iris in the vertical position. The vision of the children of both families is normal for each of them.

#### CONCLUSION

There is no question but what this condition may be transmitted from parent to child, but not all children of a parent with this condition will inherit it, neither do the children of a parent with a bilateral condition inherit a bilateral condition. I naturally suppose the child of a person having a unilateral condition might have either unilateral or bilateral coloboma.

While it is true the children of the first man are free of coloboma and three of the second man, what are the chances of the children of these children inheriting the grandfather's condition? There is one grandchild only in the two families and this child escaped. What are the chances for its children to develop the condition?

Relative to the causation of the coloboma of the second man, my opinion is that either he had this condition prior to his fall and had either failed to observe it, or know of it, or else he had an incomplete condition there which was made complete by the jar occasioned by the fall, he then observed or had his attention called to the condition. I am sure the fall did not cause the condition but that the groundwork was there before the fall or else he would not have transmitted the condition to fifty percent of his children.

Another feature of these cases is that the children inheriting this condition all have a complete coloboma of the same eye, namely the left eye, with only one of them having an incomplete condition of the right eye. I feel that should the young man who has the incomplete coloboma of the right eye receive hard enough fall or blow he would be likely to have the right become a complete coloboma.

A peculiarity about the parents and children mentioned is that they all have blue iris. As to whether this phenomenon would or does have any influence on the causation or predisposition to this congenital condition, I am unable to say.

# ASTHENOPIA\*

CHAS. H. HARALSON, M.D. TULSA

The terminology covers a multitude of conditions associated with local as well as general diseases and anomalies. The classification as given in books of the previous generation covers the subject very thoroughly. However, the trend of the present day civilization has aggravated the severity of the symptoms to the extent that too much time of any ophthalmologist can not be spent in considering the cure or amelioration of this condition. In endeavoring to present to you such a vast and indefinite subject, I wish to emphasize, for discussion, those points that seem of importance to me which come up in our daily practice. The art of ophthalmology is more definitely concerned with conditions arising from the minor things and coming to us daily

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for solution, than with the major ophthalmic questions that confront us periodically in which we can only secure inderinite results. If proper consideration is given to early symptoms, a very definite effect will be had in the lessening of all the graver ophthalmic problems.

Symptoms of asthenopia call the attention of the patient to his eyes for the first time. Heretofore, the eyes have been only a part, but with the first discomfort a vague fear ensues, and he begins to appreciate the value of vision for the first time. Having created an eye consciousness, his mind remembers the striking advertisements that have been ever before him, he consults the optometrist whose originality has displayed the most striking advertisement, and glasses are acquired, which only too often have only a psychological effect. At some later date, often after several pairs of lenses have been acquired, the ophthalmologist is consulted by a very skeptical individual who presents both a medical and a psychological problem. First, a careful history must be taken, giving due attention to any symptoms that may be caused by other conditions, then a careful and thorough examination of the eyes is made which will discover the cause and effect relief of symptoms. When the ophthalmologist, for various reasons, makes a superficial examination, the results are usually poor, and the patient is often condemned to the life of a neurotic, with its resulting journey through innumerable doctors, osteopaths, chiropractors, and the vast number of advertising quacks. This places a great deal of responsibility upon the ophthalmologist, who, for a fee, undertakes to examine the refractive, and the anatomical apparatus of the eye.

The life that we lead in the present age is one of extreme stress due to marked concentration and excesses in particular endeavors. This being an age of specialization, we find that most of our patients do things more or less in routine which require entire concentration for a very long period of time, giving them small opportunity to relax. This affects ophthalmology, chiefly in those individuals who do a great deal of near work and those individuals who do a great deal of motoring. There is very little difference in the effect of prolonged concentration of the visual focus whether it be in watching the ever changing road or in concentrating on some near object. The most important factor in

the cause of eye symptomatology is the constant fixation of the visual focus. Therefore, it is just as important to correct muscle imbalances and errors of refraction in those individuals who concentrate at a distance as it is for those whose work requires concentration at the near point.

To measure the refractive error, routine attention to detail must be observed. In my opinion, it is impossible to dispense with the cycloplegic in individuals who are not presbyopic and even in the early presbyopic patient it is sometimes most difficult to do an accurate refraction without their aid. After cycloplegic, I consider the retinoscope to be the main factor in determining refractive errors. It is the only method that we have that gives us an accurate index to the refractive media. After the retinoscope has been used it is then necessary to follow along the routine refracted route leaving no point unchecked.

It is never wise to order glasses on one examination—a manifest retraction is of great value. I prefer the post-cycloplegic, first, because it is much simpler, second, because you actually know the patient's reaction to the corrective lenses. In determining the exact prescription we must of necessity take into consideration the life of the individual, correcting nim so that the changes will not interfere too seriously with his routine. In those cases where the refractive error is very high they should be advised of the fact and told that they have eyes that do not tolerate excessive focusing, and borrowing from the quack, advise them that when they begin to notice a very small amount of discomfort or tightness around the eyes, to cease work for thirty seconds and allow their eyes to roam around, looking at objects at various angles. A complete circuit of the room which can be made in from five to thirty seconds, if made when first symptoms of discomfort are evidenced, will make the work of these individuals very much more comfortable.

We have at the present day an excessive amount of illumination. This affects brunettes moderately and blonds very definitely, therefore, illumination should be considered as a factor in prescribing for individuals suffering with asthenopic symptoms, the lenses that eliminate the ultra-violet rays of light being prescribed for all individuals who have a deficiency of

retinal pigment. It has been my observation that people who have a deficiency of pigment are fortunate if they have sufficient refractive error to force them to wear corrective lenses, otherwise they are greatly annoyed by glare, blepharitis, and conjunctivitis.

Muscular imbalances or improper co-ordination of the ocular muscles may or may not be present with either ametropia or emmetropia, and any muscular deviation from the normal merits attention. In my opinion any exophoria or hyperphoria which is not entirely corrected by refraction should be corrected by prisms. The rule that I use for correction, is to give from one-fourth to one-third of the prism necessary to correct the muscle insufficiently at a distance of twenty feet. This I have found gives the patient a great deal of comfort and if the general health of the patient is checked over and corrected, will, not infrequently, restore normal muscular balance. I do not consider that it is necessary to use prisms for esophoria.

General conditions of the body play a very vital part in eye symptoms and must be considered in all patients. The nasal accessory sinuses, tonsils, teeth, and intestinal toxemias are the most frequent offenders and should be checked, particularly where the refractive error is not sufficient to acount for all symptoms, for when the patient's symptoms are cured by the removal of an abscessed tooth he does not feel that even a very expensive window glass was of much value to him.

Neurasthenia and general debility are frequently associated with the eye symptoms in which the muscular and refractive appartus is normal. The ophthalmologist, being the first doctor consulted, should explain in detail the condition present, and should see that the patient consults a physician who is competent to effect a cure. If he does not manage these patients, we soon see the patient with glasses that are being changed at frequent intervals, and the medical profession is discredited. Where the patient has a definite eye complex, and has been wearing glasses for a long time, he does not appreciate being told that he does not need glasses. Such patients, if properly handled, will be relieved and will discard their glasses in time, to the benefit of the patient and the ophthalmologist.

Asthenopic symptoms are the responsibility of the ophthalmologist. Often it is

necessary to use the talent of all the various specialties in medicine in order to affect a cure, hence, it is very easy for the patient to go astray unless someone has the responsibility of the direction of a complete investigation. The ophthalmologist is the one best fitted to correlate findings and must assume the responsibility if these patients are to receive the results that they have a right to expect.

Case No. 1.—H. B., age 12; refracted 1920, vision 20-40; with plus 3.00, axis 90 and plus 2.50, axis 90, vision was 20-20. Wore glasses continually until 1923, when frames became too small; she discarded them for one year, then consulted someone else, and was given glasses by two ophthalmologists and two optometrists; eyes were very uncomfortable with frequent severe headaches.

Patient consulted me again April, 1929, with severe blepharitis and asthenopia; unable to do stenographic work; vision O. U. 20-70; with glases, minus 2.50 axis 30 and minus 2.00 axis 180, vision 20-20. Homatrophine was used and patient had 20-20 vision with a plus .25 combined with a plus 2.00, axis 150, and a plus .37 combined with a plus 2.00, axis 150, axis 100, on post-cycloplegic it was impossible to give her more than plus 1.50, axis 150 and plus 1.50 axis 100, vision 20-30. One month later, vision O. U. 20-20, blepharitis cured, and only a small amount of eye discomfort.

Case No. 2.—H. C., age 32; has been wearing glasses for 12 years, had eyes examined three months previously and glasses changed, because of twitching of extrinsic muscles and marked nervousness and indigestion. Vision O. U. 20-30, with plus 1.00, axis 120, O. D.; and plus 1.00 axis 60, O. S., his vision was 20-15. He was refracted under homatropine and his glasses were found to be correct except for 3 1-2 degrees of exophoria. Inasmuch as he had just been carefully examined by a competent internest, with negative findings, one-half a degree of prism, base in, was added to the correction he was wearing in each eye. Patient reported one month later that his eyes felt fine and that his nervousness and indigestion were entirely relieved.

Case No. 3.—M. F., female; age 58. Chief complaint: Unable to read, soreness of eye-balls, and periodic attacks of migraine requiring her to go to bed for two or three days.

General physical findings were negative. Patient was wearing O. U. plus 1.00 for distance and plus 3.50 O. U. for reading with which vision was normal. Examination: Media clear, fundi negative, tension normal, fields normal, O. U. vision 20-40 with plus 1.00 combined with a plus .87, axis 180, vision 20-20, add plus 2.25 for reading, exophoria 10 degrees. This correction was given and patient reported an absence of symptoms two months later.

Case No. 4.—M., age 52. Chief complaint: Headaches, nervousness, twitching of muscles in left eye, unable to read very long and could not sleep. Had had repeated examinations, two of which were completely physical, by outstanding clinics; four eye examinations in the last two years. Patient was wearing plus 1.00, axis 180 with an add. of plus 1.75 for reading. Examination of eyes was negative; tonsils out; nasal accessory sinuses negative; teeth were removed. He complained of some slight discomfort in left maxillary region; had had three upper plates made in three years. Examination revealed a normal looking mouth except that there was a small thickening of the upper gum margin on the left side; a roentgenogram was made and an un-erupted third molar was removed. Patient's symptoms cleared up in about six weeks' time.

Case No. 5.—Male, age 8. Chief complaint: nervousness and under weight. Past history: Had usual diseases of childhood, chorea at five years of age; after T. & A. made a complete recovery except for nervousness and weight; was constantly under care of a competent pediatrician; was wearing glasses, plus .50 in each eye, fitted by an optometrist. Vision O. U. 20-20. Under homatropine eyes were examined and plus 1.25, axis 180, right; plus 1.00, axis 165, left, were prescribed. Three months later the mother reported a marked improvement in nervous symptoms and four pounds gain in weight; one year later his weight was normal and she no longer paid weekly visits to the pediatrician.

#### CONCLUSIONS

- 1. Asthenopic symptoms are caused by numerous conditions, both local and general.
- 2. Careful attention to detail and a complete examination of the body and eyes are essential for relief of symptoms.
  - 3. Eye symptoms are the responsibility

of the ophthalmologist—the patient should not be dismissed with a negative refraction.

## DACRYOCYSTITIS\*

John R. Walker, M.D. ENID

Obstruction of the lacrimal passages is the cause of disease of the lacrimal sac. Aside from a few systemic diseases, such as syphilis and tuberculosis, the obstruction is caused by caseous masses from meibomian gland secretion, foreign bodies or congestion of the nasal mucus membrane. The first two need ophthalmic treatment and the last nasal. Simple dilation of the puncta and syringing of the sac will remove practically all obstructions without probing. When the latter is necessary, there are some things to consider. It must be remembered that the nasal duct is not usually straight, as is illustrated in most text books, but is decidedly curved or may have invaginations of the mucus membrane or even diverticula, and in passing a probe it may pass into these invaginations and make a false passage, with its ultimate dangers of infections, or permanent closure.

If the lacrimal passage becomes obstructed with any detritus containing pathogenic bacteria, the lacrimal sac becomes affected, inflamed, swollen with the production of pus; then the condition of dacryocystitis is produced. If drainage cannot be secured through the nasal duct to the nose, the cure of this condition, from the ophthalmological standpoint, is an excision of the sac. The most common operation for extirpation of the sac is, or has been, Miller's operation, and it has been given with very good results but there are objections to this as well as all other external operations of this type. First, the patient has the fear of a scar. Second, the question of tearing. You can assure him there will be no scar of consequence but as to the tearing, you can only assure him there will be a diminution but not complete cessation.

A large per cent of these come for relief from this annoying epiphora, and if this cannot be definitely promised, your patient is going to hesitate in having his tear sac removed. On the other hand, when

<sup>\*</sup>Read before section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May, 1929.

you mention the substitution of an intranasal operation, your patient takes more kindly to it than the external operation. it stands to reason he should, for he will have a functioning tear apparatus and this is what he is primarily seeking as well as being relieved of the anxiety of an external defect.

Operations based upon many different principles, some surgical, some not, have been devised and exploited. The very fact that there are so many operations, and so few sponsors for each, is sufficient evidence that none has attained a degree of perfection satisfactory to a majority of operators.

In lacrimal sac surgery, we have two distinct objectives, we must prevent the recurrence of infection, and for all time relieve this annoying epiphora. There are a few outstanding operations designed to relieve this condition. These are: West's operation, the Toti operation. which has been modified by Mosher, Pooley's operation, and the Dupuy-Dutemps and Bourguet operation.

The West operation is essentially a nasal procedure. The Toti-Mosher operation is a combined intra and extranasal technique, while the Dupuy-Dutemps and Bourguet is entirely from the outside. The first two methods have met with a high degree of success, West claiming 90 per cent cures, while in the Toti-Mosher, we have the percentages from 95 per cent to 97 per cent. This latter operation, when it is better known, will make a strong appeal too, and become very popular with the ophthalmic surgeons for three very good reasons. First, it is the only operation which preserves intact the lacrimal sac. Second, it is the only operation which provides a definite means of maintaining the potency of the newly made drainage canal. Third, it is the only operation which provides against the formation of granulations which defeat an otherwise successful technique.

The operation as done by Mosher is essentially as follows: The incision begins midway between the bridge of the nose and the inner canthus carried in a straight line downward to the bone, one and a half to two centimeters. The carefulness of the incision has much to do with the scar. The shorter the better, but do not handicap your operation by too small an incision in order to avoid a scar. Beginning above, the

periosteum is elevated downward and backward, turning the sac out of its position in the lacrimal bone and ascending process of the superior maxillary. This dissection is carried a little below the crest of the lacrimal bone. The sac having been exposed, identified, and laid to one side, an opening is made into the nose through the lacrimal bone and ascending process of the superior maxilla formerly occupied by the sac. This opening is enlarged anteriorly by removing a part of the ascending process with a punch. The opening should be as large as the sac, but no larger, otherwise the incision when closed will have no underlying support and develop a scar. The nasal mucus membrane is next trimmed flush with the bony opening. This is done by introducing some small flat instrument into the nose, pushing the mucus membrane into the field of vision where it can be grasped and removed, making a clean well-defined opening into the nose which is important for successful results. The care of the sac in this operation is highly technical, the inner half is removed by making a perpendicular incision along all of its anterior margin and a horizontal one along its summit, removing the flap thus made, the remaining portion of the sac is carefully sutured into the periosteum covering the nasal bone. This technique can be simplified by using the method of Pooley in removing the end of the sac, and bringing it down to make a direct connection with the mucus membrane of the nose, fixing it with a few fine cat gut sutures, and packing the nose with ribbon gauze, leaving it there for three days when it is removed and the canal washed out through the lower puncta.

The endonasal operation as done by West is commendable, while it is difficult to expose the sac by this route, yet the operation is simple when the patient is properly prepared. West divides his technic in three steps. First, a preliminary incision of the puncta a few days preceding the operation. Second, if there is any defection of the nasal septum to obstruct the view, a resection is made. And third, the anterior end of the middle turbinate is removed.

The lacrimal fossa, on the inner wall of which the sac rests is the anatomical landmark by which we are guided. This fossa is made up of two segments of bone united by a vertical suture, anterior segment belongs to the superior maxilla, posterior

segment to the lacrimal bone. It is at this place the chisel is placed to resect the wall which is very thin. Upon getting the bone clear, a sound is passed through the canaliculus into the sac gently pressing it into the finestra made in the bone. It is then grasped by forceps and a good portion removed. The wound is packed and left for three days, removed and the canal washed through the canaliculus, removing all clots which may have formed. Either of these operations is not a success unless a drop or two of colored solution in the conjunctival sac reappears in a few minutes in the nasal cavity.

# BRAIN ABSCESS FOLLOWING MASTOIDECTOMY\*

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J. P. MCGEE, A.B., M.D. OKLAHOMA CITY

REPORT OF CASE

Brain abscess of otitic origin is, fortunately, of infrequent occurrence. Extension of the infection from the middle ear or the mastoid to the cranial cavity is usually direct by continuity. The abscess is generally located on the side with the affected ear and is usually found in the temporal lobe or in the hemisphere of the cerebellum. There are exceptional cases in which the abscess is located on the side opposite the diseased ear, these cases evidently being due to a pyemic metastasis. The case which I wish to report today was one of direct extension with the abscess located in the temporal lobe on the side with the diseased ear.

The patient was a well developed, robust male, aged twenty. A simple mastoidectomy was performed on the right side October 14, 1928, followed by an uneventful recovery. On January 23, 1929, he reported to the office with an acute suppurative otitis media on the left side. Paracentesis of the drum membrane was done and free drainage established. He continued to have elevation of temperature and severe pain in the ear until January 28, when symptoms of acute mastoiditis developed. He was sent to St. Anthony's Hospital where a simple mastoidectomy was performed January 30th. Blood examination showed nothing unusual in this type of case. Culture from the ear showed staphylococcus. A massive mastoid, as shown by the X-ray, was found at operation. In the process of cleaning the entire area, the dura over the middle fossa was uncovered.

Following operation, the temperature ranged from 99 to 103 degrees Fahrenheit. On the sixth day there was a sudden rise to 106 accompanied by a slight aphasia and rather severe headache in the left temporal region. The temperature gradually declined to practically normal by February 11th, at which time the patient developed a bilateral Babinski with a tendency to ankle clonus. A neurologist was called in consultation and he advised exploration of the brain through the mastoid opening. The original wound was enlarged, exposing the dura for a space of about 1 by 3-4 inches. The brain was explored with a groove director and an abscess found about one inch from the surface in the temporal lobe. A soft rubber drain was inserted but this came out with the dressing five days later and was left out. On February 18th. there was a sudden rise in temperature to 106 accompanied by twitching of the right arm and leg. The pupils were dilated and unequal and nystagmus was present. The patient was unconscious. At no time had there been any choked disc or projectile vomiting. The abscess was again found and evacuated through the original opening, this procedure being followed on the advice of the neurologist. A soft rubber drain was left in place but two days later it was removed and a fenestrated rubber tube inserted. This was left in place until pushed out from within on March 15th. During this interval of 25 days, the patient was apparently recovering. The aphasia was gradually lessening, the twitching of the arm and leg had disappeared and the eye symptoms were no longer present.

On March 25th, the aphasia became worse, a partial paralysis of the right side developed and the patient became stuporous. This apparently continued about stationary until April 4th, when a choked disc in each eye was noted. A brain surgeon was called in consultation. He advised and did a craniotomy in the left temporoparietal region and drained a large abscess which was found about one and one-quarter inches from the surface. A soft rubber drain was inserted and left in place for three weeks when it was removed and the wound allowed to heal. There had been no discharge for a week prior to the removal of the rubber drain. Following the cranio-

<sup>\*</sup>Read before section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May, 1929.

tomy, the patient showed steady improvement. The stupor passed, the aphasia improved, use of the right side was gradually regained and the choked disc cleared. He was discharged from the hospital on May 6th, 97 days from the date of his admission. He made three trips to the office, subsequently, walking in each time and was then allowed to go home.

This case represents one of the apparently happy results following brain ab-

scess. It is regretted that we didn't exercise a little more care in the original operation when we uncovered the dura and thereby, in all probability, have avoided the development of the abscess. After its development and in the light of subsequent events, it seems that it was a mistake to explore the brain through the original opening but that a craniotomy should have been done in the beginning.

# REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

Report of examination of the Oklahoma Board of Medical Examiners, held at University Medical Building, Oklahoma City, Oklahoma, June 11, 12, 1929. Number of subjects examined in, 12; total number of questions, 120; percentage required to pass, 75; total number examined, 43; number passed, 43.

Name	Year of Birth	Place of Birth	School of Graduation	Year of Gradu- ation	Home Address or Previous Location
Black, Harold James	1900	Moulton, 1a.	Univ. of Iowa	1925	Tulsa, Okla.
Kengle, George Lewis		Augusta, Kan.	St. Louis Univ.	1926	Enid, Okla.
Harvey, John Henry		Waldron, Ark.	Univ. of Ark.	1911	Heavener, Okla.
Hasty, James Hiram		Canton, Ga.	Ga.Col.Ecl.Med.&Surg		Blair, Okla.
Prestridge, Bendo Allen		Martin Mills, Tex.	Univ. of South	1909	Hastings, Okla.
Shelton, Baxter Wright		Walker, Mo.	Washington Univ.	1928	St. Louis, Mo.
Van Arsdel, Paul Parr		Indianapolis, Ind.	Indiana Univ.	1926	Enid, Okla.
Campbell, Coyne Herbert	1904	Davidson, Okla.	Rush Med. Col.	1928	Frederick, Okla.
Dulin, Edgar Armstead		Washington, D. C.	Georgetown Univ.	1865	Bartlesville, Okla.
Smith, Delbert		Oklahoma	Univ. of Okla.	1929	Oklahoma City
Buckholts, Walter Howell		Duncan, Okla,	Univ. of Okla.	1929	Elmore City, Okla,
Martin, Howard Choice	1904	Sherman, Tex.	Univ. of Okla.	1929	Tulsa, Okla,
Thompson, Wayman J.	1904	Nowata, Okla,	Univ. of Okla.	1929	Oklahoma City
Beatty, George Lewis	1904	Oklahoma	Univ. of Okla.	1929	Oklahoma City
Hathaway, Euel Park	1903	Pontotoc, Okla.	Univ. of Okla.	1929	Mt. View, Okla.
Albright, Arnold Archibald	1903	Perkins, Okla.	Johns Hopkins	1929	Perkins, Okla,
Long, John Herman	1904	Choctaw, Okla	Johns Hopkins	1929	Norman, Okla,
Sadler, LeRoy Huskins	1904	McAlester, Okla.	Univ. of Okla.	1929	Oklahoma City
Watson, O. A.	1906	Blair, Okla.	Univ. of Okla.	1929	Cklahoma City
Sayers, James Rolland	1898	Oklahoma	Univ. of Okla.	1929	Oklahoma City
Morgan, Chesley Andrew	1899	Robberson, Okla,	Univ. of Okla.	1929	Oklahoma City
Watson, R. Delbert		Blair, Okla.	Univ. of Okla.	1929	Oklahoma City
Cotteral, John Robert	1899	Guthrie, Okla.	Univ. of Okla.	1929	Oklahoma City
Mathias, Charlie M.	1902	lowa	Univ. of Okla,	1929	Oklahoma City
Coston, Ralls McKinney	1902	Haskell, Tex.	Univ. of Okla.	1929	Birmingham, Ala.
McClure, Joy L.	1901	Ringwood, Okla.	Univ. of Okla.	1929	Oklahoma City
Stephenson, Ishmael F.	1906	Klondike, Tex.	Univ. of Okla.	1929	Oklahoma City
Stillwell, Robert Jerry			Univ. of Okla.	1929	Oklahoma City
Ferguson, Edmund Gordon	1900	Gameron, Tex.	Univ. of Okla.	1929	Oklahoma City
Adams, Robert H.	1896	lowa	Creighton Med.	1929	Oklahoma City
Diaz, Carlos J. Hermandezy	1905	Spain	Univ. of Okla.	1929	Oklahoma City
Jenkins, Henry Blackburn	1895	Rome, Mo.	Univ. of Okla.	1929	Depew, Okla.
Sterling, Harold William	1903	Duenweg, Mo.	Univ. of Louisville	1928	Oklahoma City
McAlister, Lawrence Sevier	1905	Webbers Falls, Okla.	Univ. of Nebraska	1929	Council Bluffs, Ia.
Brown, Thomas Guy	1894	Peel, Ark.	Univ. of Okla.	1929	Oklahoma City
Corbin, Damon Elliott	1905	Kirkswell, Mo.	Univ. of Okla.	1929	Oklahoma City
Yeary, Glenn Hillis	1906	Elmore City, Okla.	Univ. of Okla. Univ. of Okla.	1929	Elmore City, Okla
Willard, Delbert Gordon	1901	Chillicothe, Mo.	Univ. of Okla.	1929	Norman, Okla.
Frapp, Irvin B.	1896	Philadelphia, Miss.	Univ. of Okla.	$   \begin{array}{c}     1929 \\     1929   \end{array} $	Oklahoma City Oklahoma City
Lawson, Patrick Henry		Wayne, Okla.	Univ. of Okla.	1929	Oklahoma City
Dowell, Carr Thomas, Jr.	1906	Temple, Tex	Univ. of Okla.	1929	Oklahoma City
Lane, Lloyd Charles	1905	Roff, Okla.	St. Louis Univ.	1927	Tulsa, Okla.
O'Connell, Raymond	1902	Delaware, Ohio	Univ. of Okla.	1929	Oklahoma City
Woodward, Neil W.	1898	Elsboro, Iowa	Univ. of Okla.	1929	Tulsa, Okla.
Todd, John Broadus	1900	Gorman, Mo.	Univ. of Okla.	1929	Oklahoma City
Canada, Joseph Clayton	1903	Kemp, Tex.	Univ. of Okla.	1929	Oklahoma City
Saylor, Robert Martin	1903	Seiling, Okla.	Univ. of Okla.	1929	Oklahoma City
Little, John Rudulph	1906	Auburn, Ala.	Univ. of Okla.	1929	Oklahoma City
Jennings, Aubrey L.	1904	Barlett, Tex.	Univ. of Okla.	1929	Oklahoma City
McFadden, Candour Alfred	1903	Wellston, Okla.	Univ. of Okla.	1929	Oklahoma City
Earnheart, Harold Ernest	1903	Dangola, Ill.	Univ. of Okla.	1929	Oklahoma City
Castronovo, Joseph	1900	Providence, R. I.	Jefferson Med. Phil.	1921	Ponca City, Okla,
Morgan, Louis Schubert	1897	Arkansas City, Kan.	Memhis Hosp. Med.	1910	Sallisaw, Okla.
Cheek, James Anthony	1878	Georgia	Marion Sims	1902	Grove, Okla.
	1875	Arkansas	Bishop's Univ.		
Walker, Charles Franklin		Puggio			
Silverman, Abraham Hertz	1883	Russia	Lennoxville, Canada	1905	Holdenville, Okla.

# THE JOURNAL

OF THE

#### Oklahoma State Medical Association

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DR. CLAUDE A. THOMPSON ......Editor-in-Chief
Barnes Building, Muskogee, Okla.

DR. P. P. NESBITT. Associate Editor Medical Arts Building, Tulsa, Okla.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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#### EDITORIAL

#### THE TREATMENT FOR MALARIA

It would seem to be unnecessary and inexcusable to have to take up for discussion the proper treatment of malarial infection but the writer has considerable personal knowledge which would warrant the belief that there are great difficulties in properly treating malarial infections. Stripped of the surroundings, these difficulties consist in the lack of unanimity of action on the part of the physician and lack of intelligent cooperation on the part of the patient. The physician, or many of them for years have been inclined to seek a better remedy than the best one yet known and in doing so have fallen into the

habit of securing and applying inferior measures for the treatment of the infection. It has been nearly a quarter of a century since a commission fostered by the American Medical Association, basing its conclusions largely upon Porto Rican experiences, decided that the superior cure for as well as the efficient control of malaria was to be found in quinin sulphate and that all dilutions, compounds, mixtures and "messes" composed partly of quinin and alleged adjuvants were inferior to quinin itself.

Bass, (a), some years ago noted that no two textbooks on malaria gave the same treatment unless one copied from another. The dose was from 10 to 40 grains and indefinite for children. He noted that there were two ways of controlling malaria: one by destroying the mosquitoes, the other by controlling the parasite in man and we have to choose the most practical means or both. He noted that 10 grains nightly for eight weeks disinfected 90 per cent. of all infected persons treated. The other 10 per cent had to receive somewhat more quinin; that is, up to three 10 grain doses daily for a few days, followed by 10 grains daily for eight weeks. These conclusions were arrived at about the same time by a French Army Commission at Salonika, and in Macedonia and a British Army Commission on the Tigris River, both age old pest holes of malarial infection. The study of Bass and these two commissions covered thousands of cases.

Perhaps one of the most authoritative statements as to many phases of malaria, recently issued, is that by Craig, (b). Colonel Craig not only considers briefly most of the phases of malaria but has stressed the use of quinin as a prophylaxis against malaria. He considers the relative merits of different preparations placing quinin in its various forms as the premier or sine qui non of proper treatment. Oral administration of quinin is held to be superior to any other. He notes that intramuscular injection of quinin is, as a rule, to be condemned. He naively notes that "the most common cause of nonabsorption of prescribed quinin has been found to be the failure of the patient to take the drug. It was discovered that some 25 to 28 per cent of hospital patients fail to swallow their quinin.

The patient fails to cooperate in the treatment of malaria by having the delusion that he is cured upon the disappear-

ance of acute symptoms. Relatively he does feel very well after a chill and the subsidence of fever but he knows little or nothing of the chronicity and tenacity of the infection in certain individuals.

A recently lauded remedy, "Plasmochin" has been found to be not as effective as first thought so it has fallen into the class of "compounds" to which in order to be effective, quinin must be added.

We feel almost like apolgizing for having to remind physicians, who have seen large numbers of cases of malarial annually over many years that the simplest and most effective system of treatment is that of simplicity itself and that up to now departures seeking improvement over quinin in the treatment of malaria have always ended in failure.

The article by Colonel Craig is to be commended to every practitioner.

(a) Bass, C. C., New Orleans, Trans American Therapeutic Society, June 6, 7, 1919.
(b) Malaria, Chas. F. Craig, Medical Corps U. S. Army, Archives of Pathology, Vol. 6, October,

### Editorial Notes -- Personal and General

- DR. I. W. BOLLINGER, Henryetta, has returned from visiting clinics in Chicago.
- DR. C. F. MOORE, Durant, recently visited Los Angeles and other Pacific Coast points.
- DR. B. A. OWEN, Perry, who underwent an operation for appendicitis, is reported improving.
- DR. THOMAS M. BERRY, Eldorado, has been appointed surgeon for the Frisco Railroad at that point.
- DR. D. ARMSTRONG, Durant, spent the first half of July in San Antonio with the 320th Medical Regiment.
- DR. RAY M. BALYEAT, Oklahoma City, was elected president of the American Society for the study of allergy. This meeting was held at Portland, Oregon.
- DR. and MRS. CLAUDE S. CHAMBERS, Seminole, left the latter part of July for Rochester, Minn., where Dr. Chambers will attend clinics for a month at the Mayo Clinic.
- LINCOLN COUNTY MEDICAL SOCIETY were the guests of Dr. F. C. Brown, Sparks, July 3rd, at the Masonic Hall. A miscellaneous program was rendered and various important matters were discussed.
- HARMON COUNTY MEDICAL SOCIETY elected the following officers at a meeting held in Hollis, July 16th, their first meeting since organ-

izing: Drs. J. E. Jones, Hollis, president; W. T. Ray, Gould, vice-president; and Russell Lynch, Hollis, secretary-treasurer Dr. W. T. Ray gave the principal talk of the evening, "Specifics and Emergencies."

THE FOLLOWING OFFICERS were elected 1929-1930 at the American Medical Association at Portland, July, 1929:

President-Elect-William Gerry Morgan, Washington, D. C.

Vice President—Earnest A. Sommer, Portland, Oregon.

Secretary—Olin West, Chicago, Ill.

Treasurer—Austin A. Hayden, Chicago, Ill.

Speaker of the House of Delegates-Frederick C. Warnshuis, Grand Rapids, Mich.

Vice Speaker of the House of Delegates—Albert E. Bulson, Fort Wayne, Ind.

Board of Trustees—Term expires 1934: D. Chester Brown, Danbury, Conn., Allen H. Bunce, Atlanta, Ga.

Judicial Council—James B. Herrick, Chicago, Ill.

Council on Medical Education and Hospitals-M. W. Ireland, Washington, D. C., and James S. McLester, Birmingham, Ala.

Council on Scientific Assembly-L. H. McKinney, Colorado Springs, Colo.

#### WASHINGTON COUNTY MEDICAL NEWS

DR. and MRS. F. C. REWERTS have returned from a two weeks' vacation in Colorado.

DR. and MRS. O. I. GREEN are the proud parents of a baby daughter born August 8.

DR. F. S. ETTER and family spent a two weeks'

vacation with his father in central Missouri.
DR. H. G. CRAWFORD recently returned from several weeks of post-graduate work in New York.

- DR. C. K. TILLISON, of Ramona, has been critically ill with hemiplegia for several months.
- DR. J. L. REYNOLDS. Tulsa, announces his removal from 812 Medical Arts Building to 723 Mayo Building.
- DR. H. C. WEBER and wife have just returned from a months motor trip to Kentucky, Indiana, and Pennsylvania.
- DR. J. P. TORREY expects to spend part of August and September visiting in Massachusetts and other eastern points.
- DR. ELIZABETH M. CHAMBERLIN recently returned from post-graduate studies in laboratory work in Baltimore and New York.
- DR. SHERWELL G. WEBER has been doing post-graduate work in New York and will return to Bartlesville about September 1st.
- DR. E. E. BEECHWOOD is spending several months in New York doing post-graduate work. Mrs. Beechwood is visiting relatives in Oklahoma City during the Doctor's absence.

#### OTTAWA COUNTY MEDICAL NEWS

DR. J. T. MOON, Miami, spent two weeks at the Mayo Clinic, at Rochester, Minn., the latter part of May.

DR. M. M. DeARMAN spent several days at Wellington, Texas, on professional business, the first of July.

DR. GEORGE A. DeTAR and MRS. EFFIE BOYD, both of Miami, were married at Parsons, Kansas, June 1st.

DR. L. W. TROUT and family, Afton, left Monday to spend a month at his old home in Tennessee. The Doctor is making the trip by auto.

DR. J. W. CRAIG, Miami, spent the first week of June in Chicago, attending the National Convention of the Modern Woodmen, and looking over the X-ray clinics.

DR. and MRS. R. F. CANNON, Miami, spent the month of June in an auto tour of the Northwest. The Doctor on his return spent several days at Rochester at the Mayo Clinic.

DR. BURLEIGH DeTAR, who has been located in Miami for the past four years, has opened an office in Joplin, Missouri—in the Frisco Building, where he will devote his time to general surgery.

DR. G. O. WEBB, who has been an active practitioner at Cardin, for the past 15 years, was recently appointed to the Veteran's Bureau Staff at Knoxville, Tenn., and has removed with his family to that city.

DR. TOM DeARMAN, son of M. M. DeARMAN, Miami, has located in Miami, joining the Miami clinic, July 1st. Dr. Tom recently finished his internship in Oklahoma City, and is a graduate of O. U. Medical Department.

DR. W. A. SIBLEY, Miami, who left about the first of February of this year to take special training in nervous and mental diseases at Washington, D. C., has been put in charge of the Nervous and Mental Department of the Veteran's Bureau at Knoxville, Tenn.

# RESOLUTIONS UPON THE DEATH OF DR. W. G. LEMMON

WHEREAS, God moving in a mysterious way His wonders to perform has seen fit to remove from our midst our friend and staff associate, Dr. W. G. Lemmon. Therefore be it

RESOLVED, that, in his passing, our staff has lost one of its most active and consistent members and the hospital a surgeon well worthy of the confidence of all.

WHEREAS, as a member of the Board of Governors, he has done much to build up the standardization of the hospital by his ethical conduct and foresight. Be it

RESOLVED, that we deeply deplore his untimely death, and that a copy of these resolutions be spread upon the staff minute book in commemoration of our respect for the departed. That a

copy be sent to the bereaved family, and a copy to the Oklahoma State Medical Association Journal.

St. John's Hospital Staff,

P. N. CHARBONNET, M.D. President WADE SISLER, M. D.

Vice-President C. T. HENDERSHOT, M. D.

Secretary

July 16, 1929. Tulsa, Oklahoma.

#### RESOLUTION FOR DR. W. G. LEMMON

WHEREAS, the Almighty has in his infinite wisdom seen fit to remove from among us our esteemed members, Dr. William G. Lemmon and whereas the long and intimate relationship held with him in our local association and on the staff of our hospitals of which he was one of the most enthusiastic workers and whereas the confidence and admiration his patients and associates had for him, therefore,

RESOLVED, that the sudden removal of his life in its prime and during his period of greatest activity, leaves a vacancy that will be realized not only by this society and the association of which he was a member, but by the community at large, and be it further,

RESOLVED, that the deepest sympathy of this association and its members are with the bereaved relatives of the deceased and we express a fervent hope that so great a loss to us all may be revealed for good by Him who doeth all things well, and be it further,

RESOLVED, that a copy of these resolutions be incorporated in the minutes of this organization, a copy printed in the official organ of the State Association and a copy forwarded to the bereaved family.

P. N. CHARBONNET
C. D. F. O'HEARN
F A. GLASS
Tulsa County Medical Society.

#### UROLOGY and SYPHILOLOGY

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Edited by Rex Bolend, B.S., M.D 1010 Medical Arts Building, Oklahoma City

## CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

Think of syphilis in headaches for which no other cause can be ascertained.

In limiting diet in nephritics, do not do so at the expense of the patient's strength.

Be extremely careful in distending a diseased bladder while the patient is under an anesthetic.

In gonorrhea with unusually severe symptoms, no treatment is quite so effective as complete rest.

A woman does not hate her husband for contracting gonorrhea but for the way he got it.

If an elderly prostatic complains persistently of pain radiating down the leg, investigate the possibility of carcinoma of the gland.

Just because a kidney is tender and palpable does not necessarily mean it is a diseased one. In fact, it may be the patient's only sound one.

Before beginning the use of a bismuth preparation, be sure that it has an adequate bismuth content. This is part of your contract with the patient.

Forget the old axiom that chancres are single and chancroids multiple. Sometimes the one is double and the other single. Besides, this is the day of the dark field.

If you use a one-half per cent solution of novocaine you can practically disregard the quantity injected. It is the degree of concentration which determines danger.

In doing the first stage of a prostatectomy, remember the wisdom of placing the drainage tube in the bladder as far above the pubes as possible. This subjects the peritoneum to the least peril when you take the gland out.

With severe pain in one loin, marked fever, high leucocyte count, flexion and internal rotation of the corresponding leg, direct your investigations toward the possibility of perinephritic abscess.

Whenever a patient with cerebro-spinal syphilis consults you, a heavy responsibility has been imposed upon you. If you will not accept the patient under this condition, refer him elsewhere at once.

During an acute posterior urethritis and prostatitis, if the urine suddenly becomes clear, look out for an epididymitis. Put the patient to bed at once and order an ice-pack over the scrotum.

A higher degree of success in prostatic surgery is assured if you call into counsel a competent internist. The average old prostatic patient needs the services of an internist almost as much as he does those of the urologist. The importance of having an internist work with you in the management of these cases becomes obvious when you remember that the cause of death in many instances is a medical condition.

Chancres of the Erosive Type—Marcial I. Quiroga considers erosive chancres quite exhaustively. These chancres are characterized by adenopathy, severe pain and general constitutional disturbance. There are various types of these chancres: (1) Bland type, which have been treated quite effectively with Dmelcos' vaccine. (2) Definitely luetic chancres, treated by means of specific therapy. (3) Mixed type of chancre, first described by Rollet in 1858, which consists of a mixture of the treponema and bacillus of Ducrey.

Blood Changes in Syphilis During Malaria Therapy—Giovanni Vadala has devoted some time to the study of the blood in luetics who are undergoing treatment with malaria. He has found the following:

(1) During the period of inoculation there is an acceleration of the velocity of sedimentation of

the blood, an increase, though slight, of the viscosity, a diminution in the alkalinity, and a lymphocytosis.

- (2) During the rise in fever there is a still greater increase in the velocity of sedimentation and a decrease in the viscosity. There is a reduction in the number of red blood cells and hemoglobin content, as well as in the number of leucocytes.
- (3) During the period of full activity of the malarial parasites there is a return to the normal values of the blood constituents and sedimentation and viscosity.

Vesical Syphilis—Ubaldo Isnardi discusses the case of a man of 29 who presented himself for examination and treatment. The diagnosis was secondary lues with bladder manifestations. The cystoscope, of course, is the indispensable instrument in the diagnosis of syphilis of the bladder. The mucous membrane of the bladder like the mucus membrane elsewhere in the body, is often subjected to luetic invasion. The lesions are mostly macules. In lues of the bladder the characteristic signs of cystitis are found: tenesmus, pollakiuria and pyuria. There is no appreciable dimunition in bladder capacity. The urine is most often slightly turbid.

Epididymitis Due to the Colon Bacillus—Vintici discusses at length the role of the colon bacillus in the etiology of epididymitis. Sometimes the colon bacillus is the only micro-organism at work, and sometimes it is a secondary invader after the gonococcus has prepared the soil. The two important characteristics of a epididymitis due to the colon bacillus are the cure without further complication, and the frequency of relapses. Even when suppuration occurs, healing will be rapid as soon as the pus is evacuated, and there will be no resultant fistula.

The bacteriological diagnosis is based upon an examination (a) of the urine, and especially a culture, for many cases are not discoverable except by means of a culture; (b) of the fluid drawn from the tunica vaginalis; (c) of the pus in case of suppuration; (d) of the semen and finally (e) of the blood in case there is a suspicion of a septicopyemia.

Vaccine therapy is recommended and especially with an auto vaccine. It is therefore important to make the differential diagnosis.

The Use of Colloidal Iodine in Urological Radiology—Ubaldo Isnardi has given serious thought to the various substances used in X-ray work of the urological system to render the urinary tract opaque to the X-ray. The best results are obtained by using a 28 per cent solution of the colloidal iodine in water. The advantages of this substance over the others are: (1) it is well tolerated; (2) it is soluble in water; (3) it is absolutely harmless, and (4) it is antiseptic and germicidal.

Classification of Various Forms of Bladder Neck Obstructions—In a well presented paper, Frederick E. B. Foley offers the following classification of bladder neck obstructions.

#### I. Extrinsic Causes.

- 1. Bladder tumors
- 2. Vesical calculi
- 3. Foreign bodies

#### II. Intrinsic Causes.

- A. Disturbances of Innervation-
  - 1. Central Nervous System:
    - a. Functional retention
    - b. Diffuse lesions
    - c. Localized lesions
  - 2. Peripheral Nerve Lesions
  - 3. Atony of Bladder (myoneural?)
- B. Anatomic Change-
  - 1. Inflammatory:
    - a. Cystitis vesicae colli (female)

    - b. Acute prostatis (male)c. Contracture of the vesical neck
    - d. Prostatic calculi
  - 2. Neoplasm and Pseudo-neoplasm of the Prostate:
    - a. Benign:
      - 1. Lateral lobe
      - 2. Bar
      - 3. Mid-lobe
      - 4. Collar
      - 5. Albarran lobes
    - b. Malignant:
      - 1. Carcinoma
      - 2. Sarcoma
  - 3. Hypertrophy of Trigone.

#### DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Buliding, Oklahoma City

#### Kraurosis Vulvae. W. P. Graves and George Van S. Smith. J. A. M. A., 92:1244, (April 13) 1929.

This article is an extensive critical review of the literature in an effort to clarify the confusion which has arisen from an unfortunate terminology. The condition begins with an irritative vulvitis, is signalized by pruritus, undergoes superficial epidermal changes in the form of leukoplakia and deeper dermal changes that result in shrinking and retraction, to terminate usually in cancer. The authors urge the use of the term kraurosis, but accept the name leukoplakic vulvitis. They show clinically and histologically that they are both phrases of an identical process. The paper consists of an interesting historic revue, a discussion of the present day significance, a detailed histologic description and a consideration of the treatment. Also there are two photographs and five photomicrographs.

### Nine Cases of Erythema Nodosum., R. Hughes Parry and E. Joan Parry, Brit. M. J., 1:498 (March 16) 1929.

The authors of this paper report nine cases of erythema nodosum seen in the same community in the winter of 1926, and in the spring of 1927. In only four of the cases were they able to detect pyrexia. In two cases the nodules preceded the pyrexia, and in the other two the fever had abated before the nodules appeared. There had been a definite attack of acute rheumatism in two cases, and in two others there was a family history of acute rheumatism. Marked relief from pain was obtained from local applications of methyl salicylate in the form of either liniment or ointment. Internal administration of sodium salicylate gave

definite beneficial results to those patients who would tolerate the drug. The disease was prolonged in those patients who would not. There was a past history of tuberculosis in the family in only one case.

Metastases in Mammary Carcinoma, F. T. Ingram, Brit. M. J., 1:201 (Feb. 2) 1929.

The author reports a case of scirrhous carci-

noma of the breast with metastases to the nail fold of the left middle finger. Six months after removal there was no sign of any recurrence in the breast, axilla or anywhere else. A few days later, however, the patient complained of severe headache round about what looked like a suppurating wen in the right parietal region. This turned out to be a hard, soiled and not very vascular mass, moving freely with the scalp, and certainly not a wen. Since then she has had almost continuous headache with intermittent attacks of vomiting. Neither the thorax nor the abdomen show any abnormality.

### A Contribution to the Study of Carcinoma Arising on Lupus Vulgaris, W. J. Mrongovius, Ann. de dermat. et syph., 10:186 (Feb.) 1929.

In 200 cases this author has seen the development of carcinoma in lupus vulgaris in only two cases. Other authors report it in from 1.6 to 4 per cent of their cases. Roentgenotherapy has been suggested as a possible factor in the malignant change, but in only twenty-three of the eighthy-five cases collected by the author from the literature, has this treatment been given. Such factors as the long continued destructive treatment usually employed and the residual infection often seen in an apparently completely healed cicatrix may account for the relative frequency of malignant change in lupus. Also, it has been shown that the lupus cicatrix contains masses of enclosed epithelial cells, and it is probably that cancer originates in one or more of these imprisoned masses. In one case which the author reported in some detail, the patient had a malignant ulcer of the upper lip. This part was the site of active lupus vulgaris, which had been healed in adjacent areas by roentgen treatment. The author apparently absolves the roentgen rays from blame for the malignant change in this case.

#### Roentgen Treatment for Acute Cervical Lymphadenitis, L. C. Rosenberg, Am. J. Dis. Child, 37: 529 (March) 1929.

Rosenberg has treated eighty patients with acute cervical lymphadenitis with roentgen irradiation. The cases all occurred in children under 7 years of age, and the disease was secondary to infections of the upper respiratory tract. These cases were not due to carious teeth, buccal infection, eczema, infections of the scalp, tuberculosis of the glands, retropharyngeal abscess, or infectious mononucleosis. Invariably the inflammation occurred in the superior deep cervical nodes. All cases selected for this series were considered potentially suppurative, mild cases being excluded. Reliance was placed on irradiation as the sole therapeutic measure, no auxiliary treatment of any kind being used. Suppuration developed in twelve patients; in the remaining sixty-eight patints, or 85 per cent, the inflammation subsided completely without surgical intervention. The author asserts that every patient with acute cervical lymphadenitis and a high temperature should be treated by roentgen irradiation by which everything is to be gained and nothing to be lost. In no case was an unfavorable effect reported.

Role of Roentgen Rays in Pathogenesis of Cancerous Degeneration of Lupus, W. J. Mrongovius, Ann. de dermat. et. syph., 10-186 (Feb.) 1929.

This author thinks that the role attributed to roentgen rays in the pathogenesis of the cancerous degeneration of lupus has been exaggerated. There were only twenty-three patients among eighty-five seen by him who had previously been treated by roentgen rays, and the irradiation had been given from six to fifty years before the beginning of the cancer; most of the patients had been previously treated with Finsen light, pyrogallol and resorcin. The frequency of this type of degeneration depends probably on the nature of the cicatrix of the healed lupus, in which there were found not only superficial but even deeply situated areas of proliferated epithelium.

Causes of Pruritus Vulvae, A. Labhardt, Zentralbl. f. Gynak, 53:197 (Jan.) 1929.

The author recognizes three causes for this disease: (1) symptomatic pruritus in local disturbances of the vulva (vulvitis, maceration by leukogrhea) or in general disease (diabetes, cholemia); (2) ovariogenic pruritus with leukoplakia, and (3) neurogenic and psychogenic pruritus. Labhardt believes that the itching is a consequence of leukoplakia, which often appears alone. Eighteen from among twenty-seven women observed by him were in the climacteric; the remaining nine were hypomenorrheic or oligomenorrheic; only three were normal. Thus it is evident that ovarian hypofunction is closely related to leukoplakia. Among the twenty-seven patients, ten had diabetes.

Summary of Experiences with Tar Cancer and with Cancer in Scars, F. Bang, Hospitalstid. 71:1341 (Dec. 13) 1928.

Bang considers here the relation between the cell and its canceration. He designates the development that a normal cell undergoes to acquire the characteristics of a malignant cell as "increase in virulence". a cell being virulent, i.e., malignant, when by division it becomes able to invade the surrounding tissue. The more often the cell divides, the sooner it attains this abiliy. As the tissue offers a certain resistance to invasion, canceration depends upon (1) sufficient stimulation to cell division and (2) local weakening of the tissue to be invaded. If the resistance is lowered or the half virulent cells are stimulated still fur-ther to division, "latent cancer" appears. Nervous influences, age, intercurrent disorders, continued influence of the cancerigenic agent, possibly endogenous influences, are considered as weakening factors, and influences of widely different kinds, including mechanical influences, as irritants to division. Certain local pathologic conditions must play a part in the development of cancer. The number of divisions which the cell must undergo before becoming malignant and the life time of the normal cell are thought to vary with the kind of animal. The local and general predisposition of the individual to cancer then depends on the sum of these and other similar factors. The applicability of these views on the pathogenesis of cancer

in explanation of hitherto unexplained phenomena in the cancer theory, such as "acute and latent cancer", carcinosarcomas, and the action of roentgen rays and of radium in both causing ancuring cancer, is regarded as a criterion of the tenability of the theory. The differences in the various influences on the tissue which result in the same pathologic process are reconciled by classifying them as influences which (1) stimulate to division and (2) break down the resistance of the cells.

#### TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

Coexistent Syphilis and Tuberculosis, Adolph L. Gallant, American Review of Tuberculosis, (June) 1929.

This study includes 346 cases of simultaneously occurring syphilis and tuberculosis. 116 cases received treatment for the syphilis and 230 did not. Those treated for syphilis received at least one course of either neoarsphenamin or sulphersphenamin and a course of mercury inunctions. In the combined infection it is the plan to give reduced dosages of the arsenicals, 1-2 to 1-3 the usual dose.

In an appreciable percentage of cases in which the activity of the tuberculosis is moderate or less there is a marked improvement in the tuberculosis. The best results in this series occurred in the minimal class B cases in which all were improved.

The mortality rate in the untreated was 57 per cent. Those receiving treatment for syphilis, the mortality rate dropped to 21.5 percent.

The Early Diagnosis and Early Care of Pulmonary Tuberculosis. Gerald B. Webb, M.D. Journal of American Medical Association, Vol. 92, No. 22.

The author states that the X-ray is the only method available for the detection of early pulmonary tuberculosis. Early lesions are frequently deep seated and discrete and cannot be detected by physical examination.

When rales can be heard or when hemoptysis, pleurisy or cough occur, the lesion is often advanced.

The earliest lesions are not likely to be accompained by symptoms, and finding no signs, the majority of physicians fail to send their patients in for roentgen examination. "Further progress in eradicating tuberculosis depends to a large degree on routine roentgen examination of all young adults, especially those who have family history of tuberculosis or who have been exposed to the disease."

Auscultation, to elicit changed type of breathing and also rales, should be practiced over the entire chest, first when breathing quietly, then have the patient inhale, exhale and cough at the end of expiration. A carefully taken history is of the greatest importance. Question patient regarding exposure, and especially family contact, lassitude, loss of weight, sweats, frequent colds, hemoptysis of a dram or more, pleurisy with or

without effusion, cough, hoarseness nervousness, indigestion, menstrual irregularities, rectal abscess, and headaches.

The ear, larynx, testicles, eye grounds, anus, abdomen and lymph glands should be examined. Sputum examinations should be done by competant laboratories.

If the diagnosis of pulmonary tuberculosis is made, the patient should be put to bed for an indefinite period, preferably in a sanatorium in the home state. "Rest of body and mind is the only specific remedy yet available for the arrest and the cure of pulmonary tuberculosis. Little difference in the result of sanatorium treatment can be noted in the varying climates of the different states."

Proctective Inoculation Against Tuberculosis with BCG. A. Calmette and Harry Plotz. American Review of Tuberculosis, (June) 1929.

The authors refer to the report of Petroff, Branch and Steenken, concerning their findings on the biological characteristics of a strain of BCG. Petroff and his associates in culturing the organism found two types of colonies, one termed R which is nonvirulent and the other termed S, which is virulent for the guinea pig. Under special conditions they were also able to transform type R into type S and conclude that while BCG strain is only slightly virulent, it may in some instances produce active tuberculosis in the guinea pig and the rabbit. Calmette and Plotz offer as a possible explanation that a spontaneous tuberculosis infection might have occured in guinea pigs raised in a locality where the tubercle bacillus is so widely disseminated. The favorable results of many other investigators is cited and the authors suggest that the BCG vaccine should be estensively employed, especially when we are dealing with infants born and reared in suspected or in tuberculous families.

#### Method of Vaccination

The bacterial emulsion used as a vaccine should be made from a culture not more than 25 days old in order that it contain the greatest number of living bacteria.

The vaccination should be carried on during the first ten days of life, for it is during this period that the intestine is better able to absorb the bacteria.

#### Technique

One-half hour before feeding, the infant is given by mouth a dose of one centigram of a fresh culture of BCG, which has been finely emulsified in a liquid which conserves the vitality of the bacilli. This may be given in a small amount of warm milk, repeated twice at 48 hour intervals. The total amount of vaccine taken is 3 cgm. of bacilli.

Exercise in Phthisis. I. Rappaport. American Review of Tuberculosis, (June) 1929.

Exercise of the consumptive is one of the least understood problems of phthisiology.

Hill's investigations have taught us that exercise goes with increasing oxidation processes in the muscles to which respiratory and cardiac hyperfunction provide and transport the necessary oxygen. Glycogen is being broken up into

lactic acid, most of which is resynthetised and 1-5 of which is burnt into Co2 and H2o. Exercise beyond the capacity of the individual respiratory and cardiac hyperfunction is productive of an oxygen-debt arising from the accumulation of lactic acid in the body, that can not be resynthetised for lack of necessary oxygen. Pomplun showed that the arterial oxygen level of advanced cases of pulmonary tuberculosis is relatively and absolutely lowered. In the far advanced cases an increase of the arterial Co2 content is also demonstrable. Observations by the author has led him to believe that the cardiac phenomena are only subsidary factors of the pathological process, the main source of which is a genuine respiratory insufficiency. In advanced pulmonary tuberculosis respiratory in advanced pulmonary tuberculosis respiratory. piratory insufficiency progressing at the rate of pulmonary destruction, eventually leads to anoxemia. Fatigue is the most frequent symptom complained of and is due to lactic acid accumulation, and is the most conspicuous subjective and objective symptom of respiratory insufficiency in exercise. The next symptom is hyperpnoea.

The other clinical phenomena are increased pulse rate, palpitation on the least effort, dyspnea and cyanosis.

A tuberculosis patient should never be permitted to exercise to the point of dyspnea. Fatigue too, must be avoided. Exact pulse rate and respiratory rate determinations, as well as recovery period timing and the gauging of the degrees of cardiac response to effort, holding the breath, etc., are most valuable bedside tests of respiratory efficiency.

Considering all the circumstances we must accept the fact that there is much more to be risked by putting a consumptive on exercise too early than there is by keeping him in bed longer than is needed.

#### ORTHOPAEDIC SURGERY

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Edited by Earl D. McBride, M.D 717 North Robinson Street, Oklahoma City.

Acute Osteomyelitis in Children. R. B. Wade. Med. J Australia, xvi, 264, Mar. 2, 1929.

"Acute hematogenous osteomyelitis is an infection of the blood stream, of which the inflammation in the bone is the local manifestation."

The initial focus is always in the juxta-epiphyseal region The tisue involved is the bone marrow,—both the yellow marrow of the medullary cavity and the red marrow of the cancellated bone. The deep layer of the periosteum is continuous with the marrow through the canals of the haversian system.

The arrangement of the capillaries in the metaphysis slows the blood current and favors the deposition of emboli. The causative organisms in order of frequency are: staphylococcus aureus, pneumococcus, streptococcus, and staphylococcus albus. The staphylococcus aureus is far the most virulent. In a series of one hundred cases, the disease was more frequent among boys, from ten to fifteen years, and among the poorer classes. The bones involved in order of frequency were: tibia, femur, fibula, humerus, ulna, os calcis, mandible, clavicle, ilium, radius, metatarsal bones, phalanx, astragalus, and scaphoid. The only other parts in-

fected in this series, were endocardium, pericardium, and joints. The case mortality was fifteen per cent., caused by septicaemia, pyaemia, endocarditis, pericarditis, and pneumonia. The causative organism undoubtedly has a specific selective action.

Pus may travel under the periosteum, perforate it, and come to the surface (mild cases); or may involve red marrow and medullary canal (severe cases). It may extend into the joint. Sequestra are usually of dense cortical bone which necroses because of stripping of the periosteum. In infants under three months of age the source of infection is usually the umbilicus, and the causative organisms, the streptococcus or pneumococcus. Commonly there is a septic arthritis. The outlook is usually good, although with hip joint involvement there often follows an ankylosis.

X-ray is of no value in diagnosis until about the fourteenth day. Infection of the neck of the femur is always associated with arthritis of the hip and ultimate ankylosis. When the lower metaphysis is attacked, the knee joint is often involved; as is the ankle joint in infection of the lower tibial metaphysis and the elbow joint in the lower humeral; but upper tibial involvements seldom invade the knee. In the ilium the subperiosteal effusion is usually on the inner surface of the bone and the mortality rate is high. Tarsal osteomyelitis usually involves the neighboring joints.

The progress depends upon the relationship between virulence of infection and individual resistance. A favorable issue can be expected only if pus is produced. Many of the secondary bone infections are of such lessened virulence as to be recovered from without operation. Septicaemic and severely toxic attacks are grave; otherwise the outlook is good, fatality seldom occurring from prolonged suppuration and absorption.

No treatment of the blood stream infection seems of value. The author hopes that the day of "guttering" the whole length of the spongy bone is gone. He feels that a small opening through the cortex at the region of the metaphysis is enough, together with free incision of the periosteum and the removal of that shell of white avascular cortex from which the periosteum has been stripped off by pus, and with removal of sequestra later as needed.

Fracture of the Neck of the Femur in Children. A. Demidow. Orthopedia i Travmatologia, iv-v, 57, 1928.

This was considered a rare occurrence before the advent of the X-ray diagnosis and there is still a question whether epiphyseolysis is not a more frequent affliction. The fracture of the neck in children has a special significance, as very often the diagnosis is not made early and a coxa vara (traumatic) deformity develops.

Among the etiological factors trauma is important, though sometimes overlooked. Rickets, hypoplastic bone atrophy, osteogenesis imperfecta, endocrine changes, and undiscovered foci of osteomyelitis may all be responsible for the fracture. Clinically, certain peculiarities are met with. Often the little patient does not remember the injury, the pain does not last long, and he continues to use his limb. Sometimes there are typical symptoms of fracture with adduction, extension, exter-

nal rotation, and shortening. Fractures do not often occur before the ossification of the neck is complete. Up to four years of age they are seldom observed. The periosteum suffers little during the injury and supports the nutrition of the fragments as long as the patient does not use his extremity; but as soon as the pain has disappeared and the leg is used again, the periosteum stretches and tears, the circulation is disturbed, and consequently the formation of a normal callus becomes impossible.

The diagnosis of this type of fracture is often difficult; the possibility of a congenital dislocation of the hip, different types of infection, coxavara congenita, and other affections must be kept in mind. The author strongly advises a prolonged periodical observation of children with injury to the hip. The treatment in early cases consists of reduction and application of plaster spica for a varying period of time. When non-union is present the usual operative methods are indicated. In untreated cases the author advises the conservative procedures of Prof. Turner, application of a Thomas splint, Lorenz's bloodless reduction, or the usual surgical procedures.

Contribution from Experiments to the Knowledge of the Etiology and Pathogenesis of Deforming Osteo-Arthritis, G. Colle and E. Polacco. Arch. Italiano di Chir. xxi, 193, Apr. 1928.

The authors make a brief review of what has been done experimentally to date, to develop the knowledge of the etiology and of the pathogenesis of deforming osteo-arthritis, after which they report the results of their personal experiments. The rabbit has been the experimental animal used. By means of manual manipulation and it having been determined that the luxation of the hip persisted, the animals were injected in general intravenously, with filtrates of staphylococci with tyn-dallized bacterial suspension of the same germ and with filtrates or sterilized suspension of Koch's bacillus. The authors give in detail the protocois of the experiments, the results of the anatomic and histological studies and thus report the alterations observed: "Deformity of the articular head of the femur and of the ilium. wearings and erosions of the cartilage and of the bone, without tendency to repair and often filled with new formed connective tissue. Indication of invasion of the articular cartilage by the bone, extraarticular osteophytic formations, ridges and cartilaginous thickenings, especially in the margin, fibrosis of the subschondral medullary spaces, interruptions and functional disorder in the cartilage of growth, cystic cavities in the spongy tissue of the articular heads."

These alterations, according to the experimentors, would be altogether analogous with those to be observed in deforming osteo-arthritis. Since from other experiments performed and already published, it was found that trauma alone or infection alone was not sufficient to produce the anatomical complex observed, the authors conclude that trauma and infection associated provoke experimentally all the alterations of deforming osteo-arthritis. The fact that the infection due to staph-lococcus, also that due to the Koch bacillus, have provoked analogous results, demonstrates to the authors that different stimuli may provide identical anatomopathologic alterations.

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# THE JOURNAL

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# RESPIRATORY INFECTIONS IN CHILDREN

CARROLL M. POUNDERS, M.D., F.A.C.P. OKLAHOMA CITY

Since it is true that from October to May the time of the average medical practitioner is going to be chiefly occupied with treating respiratory infections, their complications and sequelae, occurring largely during the first decade or two of life, we should find it profitable to devote a little time to the consideration of this commonplace group of ailments at this season. In a general way we place in one group the milder diseases of the upper respiratory tract such as rhinopharyngitis, tonsillitis or the common cold-and in another group the more serious involvements of the lungs and bronchial tubes. This discussion takes up more especially the first group, dealing somewhat in generalities without any effort to be highly scientific or to go into the finer classifications.

Such a widely prevalent condition as the common cold has naturally attracted much attention on all sides. The opinion might be ventured that it is a beneficent process. That by somewhat periodically innoculating the individual with more or less attenuated bacterial toxins or products it acts as a vaccination process, bringing about immunity against the more virulent strains or groups of organisms. Thus may a measure of protection be had against attacks of severe bronchitis or the pneumonias. Such a theory is given some weight by the rather common observation that many of our most severe cases of pneumonia occur in persons who have previously been robust and healthy, enjoying unusual freedom from respiratory infections. No degree of immunity has been established in such persons by repeated mild infections. The opposite and most popular viewpoint holds that the common cold is one of the most formidable enemies of mankind. That it is a leading factor in our morbidity rate, that it results in greater economic loss and is responsible for more widespread and serious consequences than any other community aliment. Whatever might be said on either side matters little. The fact remains that the public is constantly appealing to the medical profession for a greater degree of relief from such a scourge.

Now, for a brief discussion of the causes of respiratory infections in children. In a general way these can be taken up under these headings:

- 1. Individual susceptibility.
- 2. Deficiency conditions.
- 3. Improper heating and ventilating of houses.
- 4. Improper clothing.
- 5. Exposure and chilling of the body.
- 6. Diseased tonsils and adenoids.
- 7. Contact with infection.

It is probable that most infants are born with a relative degree of immunity against respiratory infections that is rapidly lost during the first few months. After this, susceptibility seems to be at its highest up to four or five years. Then most individuals begin to develop a certain amount of acquired immunity. This reaches a much higher degree in some persons than in others of course. There is a familial or hereditary tendency to possess a high or low degree of immunity.

A somewhat broadened knowledge concerning the different vitamins and the effects on the animal organism of a prolonged diet that is deficient in one or more of these leads us to believe that they can play an important part in the degree of susceptibility to respiratory infections in early life. Especially do we feel that an insufficient intake of vitamins A, B and D leads to a high degree of susceptibility. Care must be exercised to see that all infants and young children receive daily sufficient amounts of the various food substances that are rich in these—milk, butter, egg yolk, cod liver oil and green vegetables.

In this section of the country possibly the most important factor of all is improper heating and ventilating of houses. We would estimate that from 60 to 75 per cent of the homes into which we go are overheated during the winter. Most of them are kept at around 80 degrees F. during the greater part of the day. Few children can live in rooms with gas stoves burning, windows nearly all closed and a temperature averaging close to 80 degrees during the day without becoming quite susceptible to colds. And when once contracted in such surroundings a cold is apt to last practically all winter. Doctors owe it to their patients to give this matter some attention. Show parents where to properly place a good room thermometer—on an inside wall, about five feet from the floor, away from the stove or windows. They should be taught to regulate the temperature by this and not by their own feelings, keeping it as nearly 70 degrees as possible during the day. Many women dressed as scantily as the prevailing fashion demands complain about this being too cold. When the day temperature is kept at this level, the child may be subjected to exposure, chilling or becoming uncovered at night without necessarily having a cold afterwards. The artic explorers are generally quite free from colds, although subjected to all kinds of exposure.

Heavy indoor clothing, sufficiently heavy to cause the child to perspire when it romps and plays, is quite a factor. So is insufficient outdoor clothing with bare knees and legs during cold, windy, cloudy weather. The importance of chilling of the body, exposure and going with wet shoes and stockings is too well understood to require comment.

It is felt that the subject of diseased tonsils and adenoids has been too well discussed in recent years to warrant our taking it up here.

Obviously, contact with what might be termed massive doses of the causative organisms is highly conducive to infection. To take a child during this early age of high susceptibility into crowded places during a season when large numbers of people are coughing and sneezing and saturating the air with germs, is to strongly invite trouble. When a parent, nurse, nursemaid or any other person suffering from a respiratory infection takes care of and plays with a child the probabilities are

very high that the condition will be transmitted.

The symptomatology is so well known that it can be passed over.

In discussing the treatment we wish first of all to make a plea for a more serious consideration and a more careful management of all kinds of respiratory infections. No doubt we here have an opportunity to anticipate and to forstall many serious factors contributing to the morbidity and mortality rate at this time and in later years. The first thing that is commonly neglected is the examination of the patients. They cannot be looked at from a distance and properly prescribed for. When an infant or young child is seen, either in the office or in the home, with an infection of the respiratory tract it should be given a complete examination. An accurate rectal or oral temperature should be taken. The chest should be carefully gone over-especially if there is an elevation of temperature. Auscultation through the stethoscope gives us about all the information we need here. The cervical lymph nodes deserve particular attention. Unless a man is equipped to inspect the ear drums of all these patients who run temperatures and who are too young to present dependable subjective symptoms, he is not qualified to properly treat them. It is possible for the doctor in any locality to carry a small electric otoscope in his pocket or hand bag and to familiarize himself with the use of it. A stethoscope is hardly more essential. If one does not know the normal from the abnormal ear drum, he can soon learn the difference by just continuing to look at all of them. Otitis media is extremely common and easily overlooked. In fact most cases are missed where the diagnosis is made only by the presence of a discharging ear, for a relatively small per cent rupture spontaneously. A careful inspection of the throat, preferably with the aid of a small flash light should be made.

Now as to the management. All children with respiratory infections should usually be kept indoors until well. Those with a temperature, however slight it may be, should be put to bed and kept there for at least 24 hours after they are entirely and continuously normal. Some parents find it almost impossible to carry this out. Insist on their coming as near to it as possible. Occasionally we see grippe infections where there is a daily elevation of temper-

ature for several weeks. Insist on the child being kept in bed throughout this period no matter how long it runs. Such a child has no business being up and about. During the acute stage with fever, reduce the diet to liquids and cooked cereals. Nature generally cuts down the intake of food by taking away the appetite. It is usually a mistake to urge food. Allow the appetite to take care of this. Just how much good results from the proverbial dose of castor oil is debatable.. Personally, we do not insist upon it. But the bowels should move well at least once daily, mild laxatives such as milk of magnesia or enemata being used if necessary. It is important to insist upon the fluids being pushed to the limit to insure good elimination. Most of these little patients are restless, uncomfortable and generally miserable. It is our duty to make them as comfortable as we can with safety, enabling them and the rest of the family to get as much sleep as possible. A good percentage of them require some form of sedation. Dover's powder in small doses is very satisfactory. For young infants it makes a good cough sedative and is valuable for relieving the discomfort attending severe pharyngitis or otitis media. A fair dosage for babies under a year of age is 1-10 to 1-5 grain every two or three hours. Two or three grains of bromide every three hours often works well. When there is much temperature, a grain of aspirin every two or three hours is guite safe. For a rhinitis with nasal obstruction, liquid albolene with one or two grains of menthol to each ounce or a weak solution of ephedrin instilled with a dropper every three or four hours helps. If there is much nasal discharge, a fresh 10 percent solution of argyrol or neo-silvol is popular. Nearly all cases with a purulent nasal discharge over a long period of time have sinus infection. For the inflamed tonsils and pharynx, swabbing once or twice daily with 10 percent argyrol or 2 percent mercurochrome is advisable.

Where there is bronchitis a cough sedative is usually necessary. Some preparation containing paregoric works best with children. Expectorants are not so useful as in adults. Mothers generally like to apply camphorated oil to the chest and the writer does not discourage this practice. Any favorable influence is probably the result of the sedative action of the camphor that is inhaled. In cases of severe bronchitis mustard plasters are still used in older

children and it is felt that the counter irritation is beneficial—just in what way would be difficult to explain. Inhalations of plain steam or tincture of benzoin compound benefits cases of severe laryngitis or bronchitis in small children. Atropine should be given when the secretion of mucus into the bronchi and trachea is too profuse. Marked cervical adenitis is sometimes a distressing thing. Syrup of iodide of iron given internally is believed to have a favorable effect in reducing this and should be used. The writer uses hot applications locally when the child will tolerate it. Otherwise counter irritation with iodine is used. When pus forms, of course, it must be evacuated.

The necessity for examining the ear drums has already been emphasized. Where these are simply red and painful, 4 percent phenol in glycerin should be instilled about every four hours. If the child has fever and the drums are bulging, they should be incised without delay. The commonest mistake is to let them go too long thereby prolonging the suffering and increasing the danger of complications.

One thing should be strongly emphasized. When a female child continues to run temperature longer than should be expected the urine should be examined. Especially is this important in children under two years of age and when the temperature is irregular. Many a case of pyelitis is allowed to drag along for weeks without being recognized. It is a frequent complication. As a matter of fact we are told to examine the urine in every case that runs a temperature. In a busy general practice this is almost impossible. But we should not overlook these cases of pyelitis. It is seldom seen in boys but is very common in girls. In the presence of a prolonged intermittent fever the diagnosis is usually made by the finding of many pus cells in an uncentrifuged specimen of urine. In the presence of clinical symptoms, one should not be satisfied with a single negative specimen. It is sometimes impossible for mothers to secure a specimen. If it looks like pyelitis clinically treatment should be instituted as this can do no harm. Promiscuous catheterization is not advisable but in certain puzzling cases this is a justifiable procedure.

Attention should be called to one other possible complication. The prominent part now played by heart disease in the morbidity and mortality rate at various ages

is quite well known. A good per cent of these cases develop during childhood and as a complication or sequel of tonsillitis. Secondary heart conditions are uncommon under four years of age, but in children older than this, every case of recurring tonsillitis should be looked upon as a potential case of cardiac disease. The heart should be watched and no child with an attack of acute tonsillitis should be allowed to be up and around until the pulse has slowed down to about the normal rate.

Respiratory infections of any severity usually leave children irritable, somewhat anemic, with impaired appetites and in a generally run down condition. Efforts should be made to build them up. They should have daily sun baths when the weather permits. Those who are very pale and flabby are benefitted by a few general exposures to ultra-violet rays. Syrup of iodide of iron is a good tonic for a while. They nearly all benefit from cod liver oil.

In closing may we make a plea for more attention to preventive measures in connection with respiratory infections. Believing that the deficiency conditions play a prominent role in the etiology, we feel that it is very important to see that the diet of all infants and rapidly growing children contains an abundance of the different food substances that have been found to be good sources of the needed vitamines. Cod liver oil and sun baths are necessities. Diseased tonsils and adenoids should not be a continued menace to the child's health. Parents should be taught to avoid taking young children into crowded places when colds are prevalent. They can be instructed about proper heating and ventilating of houses, and they can be taught to give more serious attention to measures for preventing colds and for treating them after they have developed.

# TUBERCULOSIS IN CHILDREN

CARL PUCKETT, M.D. OKLAHOMA CITY

This subject is receiving more and more attention by physicians in the last few years. Not that there is an increase in the disease among children. On the contrary it is found where careful records have been kept that a reduction of perhaps fifty percent has occured in twelve years. For instance in Minnesoto in the period 1915 to

1926, inclusive, the tuberculosis death rate in children under 15 was reduced 50.5 percent whereas the reduction in all ages was 36. There was a 60.3 percent reduction in the group under one year of age.

There has been an organized campaign of education for tuberculosis prevention the past twenty-five years. The organization leading this campaign has been the National Tuberculosis Association with its various state and county divisions. It has been guided and supported by far seeing physicians. The rate has declined to approximately two-fifths the rate when the organized campaign was started, and this disease is now fifth or sixth among the causes of death whereas it was first. The public generally is now hopeful of complete control and eradication. The medical profession did not always believe tuberculosis prevention to be possible; maybe prevention was believed to be theoretically possible but not practically so. Success thus far has convinced the medical profession and those of the public who have given the subject attention that complete control and eradication is possible, and practical.

The campaign in the future, perhaps the next twenty-five years, must be intelligently waged to be as successful as the past quarter century. It is a formidable task, but certainly not as discouraging an outlook as faced the few optimists starting the fight in 1904. Those students of tuberculosis prevention who are leading the effort to anticipated success believe that childhood tuberculosis must now receive our greatest amount of attention. This article, we hope, will stimulate more interest among physicians in Oklahoma. According to records, tuberculosis deaths among children in Oklahoma are less than onehalf the rate in states with approximately the same general tuberculosis rate. Is this fact due to a peculiar situation existing in this state or a failure of physicians to diagnose tuberculosis in children? Whatever the answer here is a subject that should engage our attention. As a suggestion for closer observation or better diagnosis: It was found in the twelve year group of Minnesoto children's deaths under 15 years of age that almost 50 percent were from tuberculous meningitis, and that 64 percent of the group under one year were of this type: and 24 percent of all this group occurred under one year of age.

Physicians have not given tuberculosis the attention in the past that they have

other diseases. There have been many reasons for this but chief among them has been the unsatisfactory results of treatment of adults in private practice. Perhaps another is the fact that due to the chronicity of the disease a great majority of cases become penniless and must go to public sanitoria to even get food. But with our advancing tuberculosis program it is to be seen there is an increasing opportunity for practicing physicians. Treatment of children is more satisfactory than adults. Early diagnosis is possible. The bread winner of the family may continue his work. Parents will not permit, in most cases, even when available, sanitorium care for children.

It is impossible in this article to discuss procedures, methods or findings of tuberculosis specialists who have been attempting to show the way for better diagnosis and treatment of this disease among children. However, some quotations from the October, 1927, American Review of Tuberculosis which was devoted to tuberculosis in children may give food for thought. Dr. Hetherington, in his article on "Malnutrition and Tuberculous Infection", summarizes as follows: "1. Weight below normal is not more frequently found in children in whom latent tuberculous infection is shown by sensitiveness to tuberculin than in those who give no skin reaction. 2. There is no evidence of underweight in children with latent tuberculous nodules of the lungs demonstrated by roentgenograms. 3. In children 1 to 5 per cent underweight, latent tuberculosis of tracheobronchial lymph nodes is more common than in other children. Tracheobronchial tuberculosis is seldom associated with greater loss of weight, and is probably not its cause. 4. A small group of cases indicates that latent apical tuberculosis of adolescence in some instances causes moderate loss of weight. but the lesion may occur with no loss of weight. 5. Underweight has little if any value in the diagnosis of latent tuberculous infection."

Dr. Opie, "Latent Tuberculosis in Children," concluding paragraph:

"Tuberculosis is an endemic contagious disease. Heretofore most of our opinions concerning it have been formed by considering only those instances which have reached a grade of intensity sufficient to make them conspicuous, or, as we say, recognizable clinically. Tuberculous infection that is still in the stage which we know must precede manifest disease and

infection which never becomes manifest we designate, for want of a better term, as latent. Nevertheless we know that, within certain limitations, this latent infection can be recognized and its intensity be measured by well understood procedures. No clear insight into the contagion of tuberculosis can be obtained unless latent disease is brought within our field of vision. A better understanding of how the disease behaves during its period of latency points the way to the prevention of its more harmful stages."

Dr. McPhedran, "Diagnosis of Latent Tuberculosis," conclusions: "1. When symptoms are sufficient to bring the patient to the physician the lesion is not infrequently in a stage too late for satisfactory treatment. 2. The diagnosis of tuberculosis in its latent or preclinical stage is entirely a practical procedure."

Dr. Austrian, "Evolution of Tuberculosis Infection," conclusions:

"In summary, the study of a group of individuals observed at intervals through a period of 8 to 12 years demonstrates that: 1. Though the maximum opportunity for tuberculous infection of the child is present in the homes of the actively tuberculous, extradomiciliary and extramural foci are also important sources of early contamination. 2. The variations of the response to the Pirquet test indicate that tuberculous infection may vary in degree from time to time, even when it has been acquired in earliest childhood. 3. Roentgenographic evidences of moderate enlargement of the mediastinum, of slight fibrosis of the lungs, or of old localized infiltration of the base of the lungs remain unaltered through a period of years, even when they are present in young children that react positively to tuberculin when tested according to the method of Pirquet. 4. The number of young individuals exposed to the risk of tuberculous infection that will develop clinical tuberculosis is relatively small if contact with the source of infection is removed, and good conditions of hygiene and of diet are established."

There is an opportunity in Oklahoma for physicians to render some effective service to the state, and to the credit of the medical profession, through an organized program of diagnosis and treatment of tuberculosis in children. In fact to keep pace with the rest of the country we must give the matter greater attention. An article of

interest on a state tuberculosis program, by Dr. Haygood, appears in the Southern Medical Journal for August, 1929. It is our hope that Oklahoma can inaugurate this sort of a campaign with special reference to childhood tuberculosis.

# HYPERTROPHIC STENOSIS OF THE PYLORUS

HORACE REED, M.D. OKLAHOMA CITY

# HISTORICAL

The earliest description of this condition was by Beardsley in 1788. During the century following, a few cases were reported, but the subject was first brought prominently before the medical profession in 1887 by Hirschsprung.

Following Hirschsprung's paper, which was read before the German Pediatric Society, discussion was lively as to the cause of the hypertrophy and the methods of treatment. The debate as to the origin has not as yet been entirely settled. The development of the treatment given in detail would constitute a fascinating story in the history of modern pediatrics and surgery. Surgery of the stomach was receiving a lot of attention in the late eighties and early nineties of last century. Pyloric stenosis in adults was a favorite subject. Certain surgeons, some of whom are yet active, advocated and performed plastic operations on the pylorus. Others employed gastroenterostomy as the method of choice. Both groups were getting favorable results in their adult patients.

With the establishment of hypertrophic pyloric stenosis in infants as an entity, surgeons were ready to offer the procedures found to be satisfactory in adults. In both types of operation the mortality was high. Analysis of the causes of such high mortality and subsequent events have proven that the time consumed in performing the operations was the outstanding factor in its causation. The operation which is now universally employed requires but a few minutes for its performance—10 to 14 minutes by a dexterous surgeon with well trained assistants. But if 20 or more minutes is consumed the mortality is not better than gastro-enterostomy requiring an equal time for its completion. A near accident led to the discovery of the Rammstedt operation. Rammstedt was endeavoring to perform a plastic operation on the pylorus according to the method of Fredet. The principal of the Fredet operation was to make a longitudinal incision in the pyloric mass and, by suture, convert the incision into a transverse one. Time was consumed by Rammstedt while replacing sutures which would repeatedly cut out in the tying. The infant's condition became so serious that he abandoned the suturing, dropped the pylorus back and closed the abdomen. The child recovered and was relieved from further symptoms of obstruction. Following this Rammstedt deliberately planned the operation of incision of the mass down to the mucosa, and spreading the lips of the incision to permit the muscosa to bulge into the groove, and in doing nothing more. Again he succeeded. Other surgeons proved its worth. This operation, now generally known as the Fredet-Rammstedt, may justly be termed a classic. It is spectacular in its proper execution, and there are few. if any, operations in the whole category of surgical procedures which are more useful when the indications for its smployment are positive.

### DEFINITION

Hypertrophic pyloric stenosis, as the term implies, is a narrowing of the pylorus produced by thickening of its walls. There may be varing degrees of narrowing and varying sizes of tumor masses. In relatively large tumors the passage way through the pylorus may remain sufficiently large as to permit enough food to pass to maintain body weight, and again, a smaller mass may be associated with practically complete obstruction.

Usually, however, the size of the mass is proportionate to the degree of narrowing and, in those cases demanding surgery, is usually of such dimension as to be palpable through the abdominal wall.

### **PATHOLOGY**

The tumor mass is usually described as olive shaped and may be about the dimensions of an ordinary sized olive. The mass or thickening usually ends quite abruptly on the duodenal side. On the stomach side it more often ends abruptly also, but sometimes the thickening gradually shades into the stomach wall. Microscopically the thickening is found to be due to hypertrophy of the circular muscle fibers. Occasionally the longitudinal fibers show a similar change and there is sometimes a hyperplasia in the submuscosa. The mu-

cosa and serosa are normal. There are no circulatory changes, and no round cell infiltration. The mass is peculiarly white and is practically free from blood vessels. The stomach, otherwise, is normal, except that in long standing cases it may be dilated.

### ETIOLOGY

The congenital origin of the hypertrophy is now generally accepted. However, certain facts have not been satisfactorily explained. The infant is normal at birth. There is only the usual initial loss of weight and this is regained normally in the average time. Development starts in a normal way and continues until somewhere between the 2nd and 4th week when the initial signs of obstruction make their appearance. Rarely do the signs appear before the second week and not often do they make their first appearance after the fourth week. It is stated that premature infants developing this condition show the first signs of it when they would have been between 2 and 4 weeks of age if born at full term.

Curiously enough the trouble very greatly predominates in breast fed children. The authors of a well known text on diseases of children, state in a recent edition that all the cases coming to their attention had been breast fed at time of onset of symptoms. Males predominate over females, and race appears to be a factor. It is found in the children only of Anglo-Saxon and Scandinavian people. Search has been made in certain sections of the south and no record of the trouble in negro infants has been found.

### SIGNS AND SYMPTOMS

The infant at first regurgitates its food. The reaction is not unlike that which occurs normally following overfeeding. Regurgitation, in stenosis, however, is persistent and increases in quantity until it develops into frank vomiting. Vomiting is projectile and occurs after the completion of the act of nursing. Nausea is not apparent. While nursing the child is restless. The vomitus consists of partly digested food and contains no bile. By the time frank vomiting occurs the weight has become stationary, or is already showing a decline. As the vomiting becomes more persistent and free, the stools become smaller and occur at longer and longer intervals. This is not constipation, although, is frequently described and treated as constipation. The stools are scant because scant material is reaching the intestinal canal. The temperature at first normal, becomes sub-normal as the trouble grows worse. In the severe cases, if not operated, loss of weight is progressive, signs of starvation, and dehydration becomes more and more marked and the infant is reduced to a state of marasmus as it passes into a hopless condition preceding death. Milder cases may maintain stationary weight and during certain periods show slight increase. It is in this type that the diagnosis becomes most difficult.

### DIAGNOSIS

In those cases in which the obstruction develops rapidly the diagnosis is not difficult. The signs and symptoms as above described may be supplemented by the fluroscopic examination of stomach with barium in the meal. If the full contents of stomach is not vomited fluroscopic exposures will show stomach retention or, at least, its retarded expulsion. The X-ray would most positively exclude cardiospasm. Observing the infant's abdomen after it has fed, peristaltic waves of the contracting stomach are plainly seen. With the stomach empty, as following lavage, the smaller tumor may be palpated in the line between end of right ninth rib and the umbilical scar. If the liver is very much enlarged it may not be possible to palpate the tumor. Pylorospasm and cyclic vomiting in early infancy might be mistaken for pyloric obstruction. Cases of doubt and the milder cases of obstruction are problems for the trained pediatrician, not only for diagnosis but for treatment also. Indeed the whole question involved in disturbances incident to pyloric obstruction or those conditions which in certain phases may simulate its role is a task to be managed by the pediatrician

# TREATMENT

There should be no division into "medical" and "surgical" treatment. The problem to be be met is that of maintaining at least a minimum of nourishment for the proper development of the infant. This is at all times the pediatrician's problem. If in certain cases he can, by judicious selection of drugs and food, keep up a satisfactory state of nutrition, the treatment may be termed "medical." If, on the other hand he finds that the obstruction is of that degree that proper nutrition cannot be maintained, he cannot completely surrender the case to a surgeon. Even the proper selection of cases for surgery and the proper

execution of the operation indicated does not relieve the pediatrician of his responsibility.

It is for the pediatrician to say what cases require surgery and it is his responsibility to prepare for operation, and supervise feeding after the operation. The surgeon's responsibility, is therefore, the proper execution of the operation itself. These remarks are not intended as a salve for the surgeon's conscience in the performance of his task. Advanced cases, those having lost 15 to 20 per cent of body weight, are bad risks for surgery. Acidosis must be combated. For this purpose the intraperitoneal injection of glucose solution has proven most useful. Injection of the solution may be made as often as 3 or 4 times in 24 hours, but the interval between last injection and operation should be at least six hours.

### TECHNIC OF OPERATION

Body temperature must be maintained. If the temperature of operating room is not sufficiently high, a thermic controlled table should be used. The infant is secured to a padded board and thoroughly wrapped with only the face and upper abdomen exposed. The field of operation is prepared in a manner as to avoid chilling. With all but the actual field of operation covered the infant is given a pacifier—preferably a gauze sponge soaked with dilute sweetened brandy while the local anesthesia is being injected. The injection is made with a fine needle and includes infiltration of the right rectus, and its contiguous structures above the level of umbilicus. A continous wheal is made in the skin, in the line of the proposed incision. The local anesthesia usually employed is ½ percent novocain solution. Adminstration of ether on the ordinary mask is started simultaneously with the making of the incision. The incision is in the right rectus near the midline. The upper limit of incision is the costal margin and it is 1½ to 1 3-4 inches in length. The incision is carried to the peritoneum and any bleeding points in the abdominal wall are ligated with fine cat gut before proceeding further. On opening the peritoneum the liver and perhaps, at the lower part, the stomach, will be seen.

A retractor is placed which displaces the liver upward and outward. This is held by a second assistant. The first assistant makes gentle traction on stomach and brings the pyloric tumor within reach.

Even gentle traction on the pylorus is painful, and without anesthesia would produce shock. It is this part of the procedure, only, which makes a general anesthesia necessary. The surgeon grasps the tumor with thumb and finger of one hand, visulizes it and selects the place for incision which is free from blood vessels. The incison is made in the direction of the pyloric canal, but should not extend beyond the margins of tumor at either end. For safety it should stop one or two millimeters short of these margins. The depth of incision should be safely short of the mucosa. The first assistant grasps and fixes the upper lip of the pyloric incision with a thumb or allis forcep. The surgeon grasps the opposite lip with a similar forcep and by traction downard breaks the uncut muscle fibers in the bottom of incision. Immediately the mucous membrane bulges into the groove. The grasping and spreading is repeated along the whole length of the incision until the break in the muscle forming the tumor is complete and all along the mucous membrane bulges freely. If there are any bleeding points they are ligated with fine cat gut. The pylorus is dropped back, the retractor is removed, allowing the liver to slide down and effectively block the short incision against extrusion of viscera. The administration of ether is stopped, the incision closed, using the peritoneum and muscle as one layer in continuous suture. Chromic cat-gut secures the aponeurosis of the rectus, and the skin and fascia are approximated with fine silk worm or interrupted non absorbable suture. By the time the dressings are applied the infant will be practically out from under effect of ether.

In extreme cases, a transfusion needle may be left inserted through the lower angle of incision for immediate injection of fluid. Usually water in half dram amounts may be given by mouth at the end of thirty minutes after operation and be frequently repeated. Diluted breast milk may be started at the end of six hours, and although cautiously at first, it may be gradually increased under the close supervision of the pediatrician. Treated in this manner with the operative procedure, from the time the incision is started until the last suture is taken in skin, not consuming to exceed 14 minutes the mortality in all cases, excepting the near moribound, should not exceed 10 percent while in selected cases it should be as low as 2 percent. This is presuming that the pediatrician remains in full charge until the infant may be safely left to the care of its mother or nurse.

### RESULTS

In infants whose vitality has been greatly reduced, there may be delayed healing of the abdominal wound. Removal of the sutures should be postponed in such cases. The child usually begins to increase in weight in 5 to 6 days and by the end of three weeks is taking normal quantities of food and is, in all respects, free from gastric disturbances, and the stools are of normal size and consistency. X-ray study of stomach function has revealed that the pylorus functions normally, and there are no filling defects as evidence of the former trouble. Post mortem examinations in children dying from other causes, have shown that the pyloric tumor had disappeared following the Fredet-Rammstedt operation.

# THE DIAGNOSIS OF FOREIGN BODIES IN THE AIR AND FOOD PASSAGES

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The diagnosis of foreign body in the air or food passages depends upon the history, the physical examination and the roentgenray findings. Such a diagnosis may be made with the aid of only one of these and is frequently made with only two of them. Such diagnoses are often only presumptive until the foreign body is actually seen through the bronchoscope.

The history is often neglected or disregarded except in the most obvious cases. More foreign body diagnoses are missed because the physician does not consider the condition and does not obtain a history, or because he disregards a suggestive history, than for any other reason. Three things may be established by a comprehensive history in foreign body cases: first, the possibility that there may be a foreign body present; second, the probable nature of the foreign body; third, valuable information as to its location.

Parents are apt to consider coughing or choking spells in young children of no importance. Usually, of course, they are of no importance, but this places the burden of eliciting a history of possible foreign body accident upon the physician. In a recent case a mother found a two year old child choking upon a handful of tacks and succeeded in fishing four or five tacks out of the baby's mouth with her finger. The child developed a chronic cough and was treated by several different physicians over a period of four years. Finally, at the age of six, she was referred for a tonsil operation with a diagnosis of "asthmatic bronchitis". The above history was written out in detail on the chart. A roentgenray of the chest showed a tack in the left bronchus. Obviously, had attention been paid to the history as given by the mother this would have been discovered much sooner.

At least a definite hint as to the nature of the foreign body may be obtained from the history. The child may have been playing with a string of beads which broke, or some small metallic toy which disappeared, or she may have been eating nut candy or chewing grass stems and had a choking spell. Such information may be very valuable because the vegetable foreign bodies, especially nuts, produce a very severe reaction in the tracheobronchial tree and may prove fatal to very small children in a few hours if not removed.

If there is a history of painful swallowing or inability to swallow solid food, naturally our attention is directed to the esophagus. If there is dyspnea we think of the air passages, though a large foreign body in the esophagus may cause dyspnea by pressure on the trachea. If there are periodic attacks of cough and dyspnea we think of some object loose in the air passage, probably the trachea, the attacks being caused by changes in position of the foreign body. In such a case there is grave danger in holding a child up by his heels as the foreign body may become impacted in the larynx and cause asphyxia and death unless one is prepared to do an immediate tracheotomy.

The physical signs produced by foreign bodies may be very confusing if one is not familiar with the mechanisms by which these signs are produced. Foreign bodies in the tracheobronchial tree produce entirely different conditions, depending upon whether there is bronchial obstruction or not, upon whether the obstruction is complete or not and upon the nature of the foreign body. A classification of these phenomena upon a mechanical basis has been worked out by Chevalier Jackson. There

are three main groups. In the first, the foreign body acts as a by-pass valve, causing slight or no obstruction and allowing air to pass freely in both directions. In the second group, the intruder acts as a ball-valve, allowing air to pass in one direction only. In the third group, it acts as a stop-valve, not allowing air to pass in either direction.

Small metallic objects or small organic ones which have not yet caused a reaction in the mucosa may not produce bronchial obstruction. On inspection the only indication of a pathological condition will be slight limitation of motion of the affected side of the chest. There may or may not be slight wheezing respiration. Usually there are rales to be heard over the affected area and with the development of irritation and production of excess secretion these will become more marked. They are usually loudest directly over the site of the foreign body. A small metallic object such as a pin may produce practically no reaction at all and the only sign will be the slight limitation of motion. This limitation of motion on the affected side is the most constant of all foreign body signs.

There are definite changes in the size of the air passages during the different phases of respiration. On inspiration the bronchial lumen enlarges and on expiration it becomes definitely smaller. Anyone who has looked through a bronchoscope more than a few times has seen this phenomenon repeatedly. Thus we may see how a foreign body which completely blocks a bronchus on expiration may allow air to pass on inspiration. A foreign body which does not at first block the bronchus may come into this classification, that of ballvalve obstruction, through swelling of the mucosa or the accumulation of tenacious secretions. In this group, air is drawn into the lung which cannot be expelled and an obstructive emphysema is produced. If a whole lung is involved the picture is very striking. On inspection, the affected side will appear to be larger than the other and there will be marked limitation of motion. The lung will be hyperresonant or tympanitic, the diaphragm will be lower on expiration and lower or at the same level as the other side on inspiration, the heart and mediastinal structures will be pushed over to the unaffected side especially on expiration. There may be a rough inspiratory sound heard over the affected lung with no expiratory sound or there may be no

breath sounds heard at all. Vocal fremitus will be distant and diminished if present. There will be a compensatory emphysema. or hyperactivity, of the unaffected side.

Complete bronchial obstruction is produced by large, tightly impacted foreign bodies or by smaller bodies combined with swelling of the mucosa. The air trapped inside the affected lung is absorbed, the lung collapses and there is an obstructive atelectasis. There will be all the usual signs of an atelectasis: apparent small size of the affected chest, limitation of movement, high, fixed or very slightly moving diaphragm, absent breath and voice sounds and the heart and mediastinum drawn over to the affected side. Such a condition of atelectasis usually does not persist for long. There is an accumulation of secretion which fills up the empty lung and a waterlogged condition known as "drowned lung" develops. The lung may resume its normal size and shape. There will be limitation of motion, dullness to flatness on percussion, absent breath and voice sounds, the mediastinal structures will move toward the unaffected side on expiration, and toward the affected side on inspiration, and the diaphragm will be fixed or very slightly moving. If the obstruction is not quite complete the signs may be further complicated by moist rales of varying character due to the secretion and a small amount of air. This condition has been erroneously diagnosed as empyema or as pneumonia.

As may be seen from the mechanisms producing them, the above conditions may change rather rapidly from one to another. The excess secretion often present complicates accurate diagnosis and the signs may change very materially in a few hours. Because of this, McCrae emphasizes the importance of repeated physicial examinations. An obscure diagnosis may be very definite a few hours later. He also states that he has never seen real pneumonia in a foreign body case, though he has seen many that were originally diagnosed as pneumonia. Differential diagnosis is rendered much less dificult if one remembers the mechanisms above described.

In cases with esophageal foreign body there are apt to be no characteristic physical signs at all. In some cases with a foreign body lodged at the level of the suprasternal notch, the most frequent site, there is tenderness to pressure posteriorly at the sides of the trachea or on the trachea at the suprasternal notch. When the foreign body is large enough to cause pressure on the trachea the signs will refer to the trachea. If the cervical esophagus is perforated there will be signs of inflammation of the neck tissues plus emphysema of those tissues. If the thoracic esophagus is perforated a suppurative mediastinitis usually results causing prostration, fever, extreme toxemia and probable death.

The roentgenray is of course of great assistance in making diagnoses. With metallic foreign bodies there is no difficulty at all in determining that there is a foreign body present. To determine the location of the foreign body and the number of them present is but little more difficult. All cases of suspected foreign body should be examined roentgenographically from the nasopharynx to the tuberosities of the ischia. Foreign bodies may lodge in the nasopharynx and they may pass downward into the stomach and intestines. A roentgenray of the chest may not only miss both of these localities but may miss objects in the larynx, upper esophagus and hypopharynx. There are also cases with multiple foreign bodies and, while attention is being directed to one in the chest, another, undiagnosed one may perforate the intestine. Another important point in making a roentgenray study of the chest for foreign body is to take both anteroposterior and lateral plates. This aids very materially in localizing a foreign body in the lung and in determining whether it is in the trachea or in the esophagus. A flat foreign body in the larynx or trachea almost invariably lies in the sagittal plane while in the esophagus such a body almost invariably lies in the coronal plane. In lateral plates the outline of the tracheal airway may usually be seen which also aids in localization.

Foreign bodies which are not opaque to the roentgenrays present much more difficulty. In the esophagus the use of barium mixture is of considerable assistance. Marked obstruction is of course easily diagnosed. If the patient is observed under the fluoroscope while swallowing the barium mixture, a large foreign body may sometimes be definitely outlined. Smaller objects, or flat ones, may allow the mixture to pass freely however. A large capsule, filled with barium, may lodge, at least momentarily, above a foreign body. One must not be deceived here by the normal

slight pause at the level of the cricopharyngeus.

In the lung and tracheobronchial tree, one must again bear in mind the mechanisms by which foreign bodies disturb function. Obstructive emphysema and obstructive atelectasis may be demonstrated very beautifully under the fluoroscope. They may also be demonstrated by two plates of the chest, one taken at full inspiration and the other taken at full expiration. Manges, at the Jefferson Hospital has affirmed that he can diagnose and locate a non-opaque foreign body in the lung as accurately as an opaque one. He also stresses the importance of repeated examinations because of the rapidity with which changes may occur in the chest findings. The writings of Jackson, McCrae, Manges and others present many roentgenray pictures illustrating the above mechanisms.

### CONCLUSION

Diagnoses of foreign bodies are more often missed because the physician does not consider them or disregards the possibility of their being present than because of difficulty in making the diagnosis. Complete histories, repeated physical examinations and the use of the roentgenray, together with a knowledge of the mechanisms by which foreign bodies disturb function, will enable one to make most of these diagnoses rather easily.

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# THE IMPORTANCE OF ENDOCRIN-OLOGY IN PEDIATRICS\*

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### GENERAL CONSIDERATIONS

Although other than glands of incretion are important factors in any medical scheme of child health, the endocrines are steadily coming to the fore. The endocrinoligist as well as the pediatrist realizes that the constitutional make-up in the child and the character of his growth and development, are due to environment, nervous influences and also hormone or chemical influences. They realize that the latter are composed of both inherited and environmental factors. In shaping physical features and mental leanings, the endocrines

<sup>\*</sup>Read in part before Tulsa County Medical Society, Tulsa, Oklahoma, May 7, 1929.

play an important part, especially noticeable when we consider the weight relations of the different endocrine glands.

There seems to be five periods of growth distinguishable, each with its endocrine formula. We may point out the hypothyreotic constitution in the child, the thyreotoxic and the hypophyseopathic constitution. In certain families, due to endocrine disturbance, we find exophthalmic goitre, diabetes and obesity. If early discovered by the child specialist, he can employ corrective exogenous influences.

In this connection, much credit is due Dr. William Engelbach for foundation work done at his clinics at the Department of Medicine, St. Louis University School, a decade ago. In his studies of endocrine adiposity, he discussed in July, 1920, in the Medical Clinic of North America, the fallacies of etiology of obesity and the role of internal secretions. In covering the significance of age incidence, he classed the overweight group as infantile, juvenile and adult varieties. In making a diagnostic evaluation of the localization of panninculus in different ductless gland disorders, he illustrated with descriptions of classical cases of thyroid, hypophyseal gonad and puriglandular adiposity. He advised the use of dessicated glandular substance in salol or creatinin-coated capsules. After maximum effect of one glandular substance was obtained, he thought it well to use another in the reduction of obesity. He advised early prolonged use of uniglandular treatment of endocrine disorders, together with ordinary dietetic schemes. In one instance of hypopituitarism, aged fifteen, male, he illustrates the classical girdle, mammary adiposity and aplasia of the genitalia, which disappeared following reaction to treatment.

Dr. Engelbach worked in conjunction with John L. Tierney in conducting a clinic covering pubertas pracox, considered etiologically as gonad, adrenal cortex and pineal. A differential diagnostic table and the presentation of typical cases was followed by the consideration that puberty is of the hypergonad type, with the adrenal cortex and pineal next in frequency. The logical procedure advised "in case of tumor is surgery and in case of hyperplasia or hyperactivity, properly directed radiation or suitable antagonistic endocrine therapy."

Important fundamental work was done

in the field of treatment of endocrine disturbance in children by Engelbach subsequent to 1920. In his clinic at the Jewish Hospital (reported in Med. Clin. of N. Am-St. Louis, Sept., 1927) he went into the field of infantile defectiveness, differentiating remediable from incurable groups. He advocates early diagnosis from physical rather than mental manifestations-to parathyroid and calcium deficiency as well as pituitary in the juvenile and adult. Other endocrine disorders producing mental defectiveness had a relation to juvenile delinquencies. This learned specialist bespeaks glandular treatment of juvenile criminality. He advises that "all of these conditions demand the earliest scrutinizing attention of the family physican, who in the majority of cases will be able to diagnose the disorders and institute treatment," which in a large percentage of the remediable group of defectives, will prevent serious end results.

Watchful of all signs of endocrine disturbances in the child, the pediatrist will note his general appearance, namely, skin and appendages and teeth; body fat, any disproportion in growth or retardation in development as well as the facies.

Some seven faulty types can be distinguished by the endocrinologist, who has ever in mind the normal picture or type. These seven may be further subclassified but are in general to be listed as dwarfish children, tall ones, the undernourished and the fat, the over alert and the drowsy and finally the languid child.

The infant's skin may show much through its texture, color, thickness, wrinkling and moisture. In the normal child, the scalp has a round margin above the forehead. Aside from secondary characteristics, the nails too may be given a routine examination and will show up certain internal secretory disorders.

There is a constant increase of fat to be noted in the hypofunctioning of the interrenal system in the young, and also in cases of pineal tumors. Head disproportion of growth is readily observed, as also character of the bones—their length, degree of slenderness—slender tapering fingers indicating hyperthyroidism. During infancy and childhood, much can be done to prevent retardaton in speech development, of teeth, mentality, and walking. While biological tests and laboratory studies may be made, it is desirable to em-

phasize the value of simple clinical observation by the pediatrist.

# ENDROCRINE THERAPY FOR RICKETS, BLOOD CIRCULATION, ETC.

It is Llewellyn who points out (M. J. & Rec. 121:618, May, 1925) that an endocrinopathy, in certain children, renders their joints more susceptible to the infection of rheumatism and rheumatoid arthritis than the joints of others. In certain cases, where salicylates have not given results, he used thyroid therapy to give relief. The glands at fault are as a rule the thyroids and parathyroids. These defective glands are usually inherited from either parent and are either hyposecretory or hypersecretory.

Rickets may be due to endocrine imbalance inherited from the mother. Delayed dentition and rapid decay are indentified with conditions of the various glands including gonads, thymus and suprarenals. The thymus is atrophied in cases of marasmus and rickets. Evidently, diet alone is non-corrective. It is the deficiency in endocrine glands which affects retention of calcium salts in the body. The endocrines may be stimulated by use of cod liver oil, roentgen ray and sunshine, which rays also help increase blood calcium. Langstein and Vollmer (Ztschr. f. Kinderh. 39-751, 1925) used fresh preparation of hypophysis, thymus, ovary and thyroid with hydrous wool fat, to rub on the skin of affected children on this theory. The children recovered under this treatment, but one recovered merely by simple massage with petrolatum.

To the endocrinologist, it does not appear that the parathyroids alone insure proper bones and teeth, but rather that all the ductless glands must harmonize, with the aid of sunshine and special rays, plus cod liver oil for vitamin D. While adults need a gram a day of calcium, children need twice as much, particularly in milk and in the legumes and eggs. Milk contains 0.1 per cent of CaO, and 500 c.c. would offer the necessary calcium, an excess of which does not harm. However, the parathyroids have a close connection with calcium metabolism.

It was McCallum and Voegtlin who in 1909, demonstrated that the function of the parathyroids is to regulate calcium metabolism. Hyperexcitability of the nerves was proved to be due to diminished calcium in the blood. Collip, in 1924, reported the isolation of this active principle,

a protein-like substance or hormone, which maintains a definite level of calcium in the blood. The thyroid hormone stimulates cell activity. The endocrine glands are thus the automatic regulators of our autonomic system.

The various substances used to influence pathologic-physiologic mechanisms are thyroxin for accelerating carbohydrate metabolism, proteins and minerals. Epinephrin is valuable in circulatory troubles, for it relieves vasoconstriction of vascular tissues, resuscitates the heart in syncope and also favors sympathetic innervation in bronchospasm.

H. P. Grossman (Virchows Arch f. Patha. Anat. 265:137, 1927) has examined the parathyroids, the thyroids, and suprarenals for their content in fats and lipoids in a hundred necropsies, many being children. Adipose tissue was present in all but six parathyroids, and eleven thyroids. Intracellular lipoids, chiefly phosphatids and lecithins, were present in parenchyma cells. The presence of fat depends on nutritional state of the individual. The lipoids of the cells of the parathyroids and the thyroid are results of intracellular metabolism, and the quantity expresses the activity of these cells.

### PITUITARY GLANDS

Pituitary headache, while occuring especially in adolescents, has been found in younger children. This gives rise to burning ache between the temples, behind the eyes, and may last from a half hour to two days. Its cause is usually a pathologic enlargement of the hypophysis. Pains may be heightened by ingestion of sugar, by excitement or stooping over. Nausea and vomiting is followed by relief. In young children, the condition causes mental retardation, dullness and sluggish mentality. Disorders of the pituitary gland or the hypophyses cerebri produce syndromes of acromegaly and gigantism, if due to overactivity of anterior lobe; and of dwarfism if of under activity. Dystrophia adiposogenitalis is a bilobar deficiency. Underactivity, if of the pars intermedia, and posterior, sometimes results in diabetes insipidus. The latter condition is supposedly due to insufficient production of pituitary, which lowers the renal threshold of excretion. Early age finds many cases of gigantism, with obesity. Roentgenograms and charts of visual fields point to neoplasm of hypophyseal struma. An enlarged hypophysis may easily injure the adjacent tuber cinereum.

Anterior pituitary lobe extracts may be fed by mouth to produce some therapeutic effects, but intramusulor injections are more potent. These extracts seem of worth in cases of infantilism, where the epiphyses are not already fused, and in certain types of amenorrhea associated with a degree of infantilism. These extracts have also an effect on the blood sugar curve. Evidence points to the pituitary as the chief centers of the spinal system—the primary source of excitomotor impulses. In underfunctioning pituitary, we find the shipmate of underdeveloped genitalia. With overstimulated pituitary, there occurs an active adrenal system and thyroparatharoid apparatus, which brings about cases of large, firmly calcified limbs and skeleton and oversized genitalia, and also increased sugar production in the blood.

### PANCREAS AND SPLEEN AND THYMUS

These two are an endocrinological entity, and there is a close functioning between these organs. It is apparent that the pancreas is of great importance for if it is removed, death occurs. Impaired glycosuria is the result of pancreatic deficiency. The spleen has as its function the conversion of prototrypsin from the pancreas. The product is insulin or trypsin ferment, which has as its function the digestion of albuminoxid bodies in the blood stream.

As regards the thymus, if this is enlarged, it will show up in the Roentgenogram of the chld's chest, and X-ray treatment is indicated. There is difficulty in breathing and cyanosis. Undernourishment exists without other signs. The breath holding and cyanotic attacks suggest the possibility of enlargement. Vomiting becomes pronounced, with large gastric peristaltic waves. The thymus seems to elaborate complex nucloprotein granules.

### SUPRARENALS

Following castration and ovarian excision, the suprarenals show hypertrophy. The phenomenon of menstruation is present when the corpus luteum functions. Mobilization of sugar is then increased. The majority of adrenal tumors progress rapidly after first symptoms. Sarcoma or lymphorsarcoma are considered to be of neuroblastic origin. These neuroblastoma or neurocytoma are derived from the medullary portion of the gland and are seen during infancy or early childhood. Of some

seventy cases, 34 percent occurred in a series in children, the majority males. Even though one of the suprarenal glands is affected, there can be brownish pigmentation of the skin, tumor mass, weakness and gastro-intestinal symptoms.

### OBSERVATIONS ON THE SKIN

Disordered ductless glands may produce serious cutaneous disturbance, for the skin is part of the coordinated organism, and thus reveals much to the endocrinologist in his survey of the ailing child, giving indications of the plainest character. Congestive and inflammatory changes bring us to the condition of the ductless glands. Scleroderma with its collagen bundles is a disorder of nutrition. Salves and mischevous rays are not an important part of the armamentarium of the pediatrist in treating such conditions of the skin. A disordered ductless gland can produce grave cutaneous disturbance, as in myxedema as a consequence of hypothyroidism. Teachers of dermatology need to make obvious deductions from endocrinology and look to lesions that are not actual neoplasms, to errors of nutrition due to defective ductless glands, which produce defective circulation.

Not only the skin but general circulation, etc., may be toned up. Parathyroid extract stimulates calcium metabolism in tetany and is otherwise valuable in correcting faulty coagulability of the blood, in jaundice, in soothing the nervous system in epilepsy, and promoting the formation of callus after fracture. Pituitary is useful for post partum hemorrhage. Insulin aids emaciated and cachectic children, and also is administered to the prematurely born, besides combatting traumatic shock and in cases of infantile vomiting and diarrhoea, preventing too much aqueous loss.

### THYROIDISM

In producing the symptoms of sporadic cretinism, other members of the endocrine system besides the enlarged thyroid are responsible, for instance the anterior lobe of the pituitary gland. The function of the pituitary seems to be impaired by absence of thyroid secretion. As a result we find retardation of skeletal growth and teeth, and of the umbilical ring and closure of the fontanelles and sutures. The stunted thyroid is not so easily observed, but insufficiency of function becomes more evident whenever there is an extra strain on the system of the child, as by shock or psy-

chic trauma, infection or toxemia. Congenital inferiority of this gland causes a lack of vital endurance, and disturbance of the other endocrines, which shows up in a variety of ways when children of the same family are affected. As the functional deficiency of endocrine gland may not be in evidence until in late life, there are numerous children who die young unless errors are detected in time.

Enlarged thyroid glands are not necessarily confined to regions that are supposed to be free from goitre, for there is little difference between sporadic and endemic cretinism. There are injurious sanitary conditions here and there observable together with inferior, degenerated stock. Villages situated in mountainous districts favor the appearance of recessive factors. Hypothyroid children are inferior, less adventurous and ambitious and remain at home.

Iodine hyperthyroidism is found in much younger individuals than is toxic adenoma. There is a rapid onset of symptoms in about two months, with nervousness, loss of weight and strength, tachycardia and insomnia. The marked tachycardia with pulse rate of even 175 may not be affected by large doses of digitalis. Severe restlessness and lack of coordination is extreme. Tendency to nausea is here observed while in exophthalmic goitre there are gastrointestinal crisis with ravenous appetite. The indiscriminate use of iodine develops into nontoxic adenomas. Iodine is found in all the thyroid glands examined in specimens from the sixth month of pregnancy on, and in young children the weigth and iodine content of the thyroid gradually increase with a marked increase noted at puberty. The thyroids of infants are relatively rich in water.

Classifying the various diseases of the thyroid is an aid to treatment. Diagnosis is made as follows: Colloid; adenomatous (non toxic, without hyperthyroidism; and with hyperthyroidism, toxic; iodine hyperthyroidism); exophthalmic goitre; and finally tuberculosis, malignancy, etc., as suggested by Plummer. Colloid goitre afflicts a large percentage of girls between the ages of ten and twenty and many boys in the populous districts, a condition which seems to be increasing with each generation, for which iodine is not a preventive. In nontoxic adenoma, the gland seems to create more iodine to meet the increasing needs of the body and attempts to reproduce itself. These adenomas appear between the ages of twelve and eighteen and frequently become substernal. The pediatrist is not interested in their surgical removal, for the necessity may arise after the age of twenty-one.

Minimal doses of iodine may be given for the prevention of colloid goitre in school children. It was in 1918, that Marino and Kimball contributed to this prophylaxis, especially in endemic regions. However, indiscriminate use of iodine in tablets or table salt was not advocated.

Rare instances of hyperthyroidism are encountered by the pediatrist. Still, exophthalmic goitre is found in children between 3 and 10 years of age. Vascular goitre causes prominence of eyes, fine tremor of the fingers, and tachycardia. Other symptoms that point to this condition are excessive sweating, rapid emaciation, bulimia and thin diarrhea. Mental effects are emotional instabilty, restlessness and overalertness. The Mersenburger triad may be absent, but the accelerated basal metabolic rate is frequently diagnostic. Thyroidectomy is advised only in exceptional cases, if ordinary soothing remedies do not correct the condition.

THE HEALTH EXAMINATION WITH SPECIAL REFERENCE TO THE INFANT AND PRE-SCHOOL CHILD (A brief review of the literature)

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This article is the first of a short series on the newer phases of the family physician's responsibilities in the field of medicine. Its purpose is to present in brief form the background of the movement as recorded by the acknowledged pioneers in this field. Quotations from these writers with a few brief observations of my own will be given under the following subheads: The Health Examination Defined, The Ultimate Goal, The History, The Scope of the Health Examination, The Health Prescription, Forms and Summary and Conclusions.

### THE HEALTH EXAMINATION DEFINED

According to Emerson<sup>1</sup>, "The periodic medical examination of apparently healthy persons is designed to detect the early evidences of disorder before discomfort, inconvenience, interference with work, or

anxiety has driven the candidate for examination to seek medical advice for the treatment of established disease." He further stresses the attitude of mind of both physician and patient as special features distinguishing the health examination. Means' says that a health examination differs fundamentally from a disease diagnosis alone, a physical alone, or a proctective alone, but, while it includes the essentials of all three, it has in addition thereto "specific health building items." Regarding the health examination of the child, Veeder' says. "In childhood the examination has a double purpose; it recognizes incipient physicial defects or diseases . . . . and in addition it is a method of watching and measuring the development of the child," and in another article he adds, "it is my feeling that the health examination should extend beyond the physical side and include the question of mental development in its broadest aspects, for we realize today that the mental growth that takes place during these years are of tremendous import. Further the habit and behavior problems of the pre-school child are intimately related to and connected with the physical problems."

### THE ULTIMATE GOAL

In recent years readers of health literature frequently run across these terms: the normal child, the optimal child, positive health. Kellogg' has made an effort to clarify the meaning of the first by differentiating the "biologist's normal" from the "ideal normal." "The former may be presumed to be," he says, "the most abundantly represented type among the various types represented in a group of individuals," the latter, (an individual) "sound in body and mind and ushered into the world under the most favoring circumstances." Chaplin and Strecker' define optimal children as those "best able to meet the needs of childhood because their bodies are well built and work efficiently." Means' defines positive health as being the result achieved by the individual after all his health liabilities, found by the health examination, have been eradicated and all his assets discovered at the same time developed to the examinee's maximum. The ultimate goal is. then, for the subnormal and the "normal" child, optimal health, and for the adult, positive health.

#### THE HISTORY

Sentiment favoring the health examination was a natural result of the discussions

of lay and professional groups of the health status of representative and wide spread bodies of the nation's population at the time of and following the selective draft. Prior to this the pediatrists had pretty well taken over the health supervision of the "infant feeding" cases of the larger cities and the principle of medical examinations of the school children had been accepted. Studies made by the Children's Bureau showed the alarmingly high infant mortality rate and the selective draft revealed the health hazards of the young men. In 1919, a co-operative body called the Woman's Foundation for Health' (now changed to Foundation for Positive Health to include men as well) was organized. Its purpose as set forth in its literature was and is "To create a desire for Positive health, and to make ways and means available for obtaining and maintaining it" It published a text on health building in July, 1922. In 1923, the form now in general use by the medical profession for the health examination was perfected and adopted by a joint committee from the Council of Health and Public Instruction' and the State Secretaries Association. The medical examination for the purpose of discovering the physical defects of the school child developed after 1912, but before the World War. With the acceptance of the Federal Maternity and Infancy Act in 192110, the principle of health examinations of all infants had been accepted and as this showed so clearly the utter neglect of the preschool children it was the natural practice of the examiners and the welfare workers, dealing with the infant, to raise the age limit to include these children, and now, as if to make up for the neglect of the past years, has come the nation wide interest in the summer round-up" which lowers the school age to include the five year olds who will enter school for the first time following the health examination in the spring. Dodson' says of this latter movement. "It is one of the most important and far reaching movements in preventive medicine of our time." It is sponsored by the National Congress of Parents and Teachers and was inaugurated in 1925.

### THE SCOPE OF THE HEALTH EXAMINATION

That the health examination should be accurate, thorough and all inclusive, seems to be the conclusion of all writers on the subject. Not only the physical findings of the applicant are of importance but a knowledge of his mental status, his habits,

his behavior and his environment is vital. Concerning the attitude of the physician, Emerson's says: "If anything, the physician must be more keenly alert and his examination must be more comprehensive to detect early, unsuspected evidences of faulty function or structure in the latter than in the former case." Morse" observes that "A careful complete physical examination is of even greater value in diagnosis in early than in adult life because the baby and the young child can tell little or nothing as to their subjective symptoms." He further states that "It is impossible to make a proper physical examination of a baby or a child unless it is stripped. It is not enough to loosen or pull up the clothes. Everything must be taken off including the shoes and stockings as not infrequently something will be found in some unexpected locality which will throw light on the diagnosis." Smith advises not only to look for signs of disease but "to discover whether or not there is any departure from the normal." He also stresses the absolute necessity of stripping the child for the examination. Harvey covers the subject humorously in the interrogatory form as follows: "Do we examine children or do we give them the once-over? Do we remember that a child has height, weight, a build, speech, mentality and facial expression? That he has a head, eyes, ears, nose, mouth, teeth, throat, neck and a back as well as a front to his chest, an abdomen with a liver border and perhaps a palpable spleen; that he has genitals, a spinal column, hands, legs, ankles, feet? Do we find that urine, stools and perhaps the hemoglobin are normal?" Concerning the ears, Morse's says that "No physician is doing his duty to his patients who does not train himself to look at the ears and then make use of his training," although Veeder" thinks it is difficult to examine the hearing of a small child during a routine examination. Veeder<sup>20</sup> also believes that no satisfactory examination of the vision of a young child can be made except by an experienced ophthalmologist of patience and skill and that possibly 85 per cent of the pre-school age children have good vision. Of those that do not have he thinks most are obvious, as in strabismus. On the other hand, Morse<sup>21</sup>, in discussing this subject before a group of physicians, made the assertion that "I am sure there is not a man in the room who has not overlooked crossed eyes until the parents told him about them." Harvey specifically calls attention to certain parts of the physical examination usually neglected, the genitals, when he says, "Parents are particularly concerned as to whether or not the genitals are normal." Morse<sup>23</sup> recommends observing the state of nutrition first, points out that the color of the child is not always an index of the hemoglobin content of the blood and emphasizes the need of observing the posture, saying "if done many patients will be kept from chiropractors and osteopaths." All through the examination the physician should notice whether the child is obedient or not, whether it is nervous, whether it is well controlled and whether it is intelligent. He believes that "The attitude of the parents is just as important as that of the child; whether they expect obedience, whether they are unstable and nervous. Many times the trouble is not with the child but with the parents and it is necessary to work with the parents instead of with the child." Veeder thinks that "The recognition of the 'habit causes' of malnutrition, faulty posture, defective teeth, etc., is as important as the searching out of purely physical causes" and as regards the mental growth by periods, development of personality traits, emotional conflicts, etc., he further states that they must be a part of the health examination but "how such examinations are to be carried out and made practical for general application is a problem that must be worked out."

### THE HEALTH PRESCRIPTION

The health prescription, all the writers agree, must be clear, concise, definite and put in writing. Since it is designed not only to prolong life but to promote health and happiness as well, it necessarily concerns itself with many phases of the candidate's daily life. As Means<sup>25</sup> puts it "The person examined wants to know what exercise to take, why to take it, when to take it, and what the technic is; he wants to know what to eat and what not to eat; he wants to bring his diet list back to have it gone over: he wants to be checked up about his grouches, his attitude towards his wife, his work and his neighbors." Emerson observes that "The advice given should consist of written directions to the patient for the correction or limitation of defects or errors discovered. Simple, precise, nontechnical wording should be used and only such measures should be proposed as fall within the possibilities of the patient to carry out." He goes on to say "It will commonly be found that social, recreational and other local resources, with which the physician should be familiar, can be used with advantage as gymnasiums, libraries, clubs and community groups of various kinds, for mental and physical development in the interest of health," and further states that the physician will be able to speak much more convincingly about the value of diet, exercise, recreation, etc., if he himself has taken advantage of the benefits offered thereby.

The health prescription of the young child is comprehensively summed up by Smith" in the paragraphs that follow:

"We should outline for the child a satisfactory daily routine and give directions for personal hygiene. This involves the prescribing of the right diet modified according to the age of the child. It is essential in this connection to insist upon proper eating habits—appetite, regularity, eating foods as served and many other matters of this nature. Adequate daily bowel movements must be secured. The requisite number of hours of sleep at night with a daily midday nap up to the sixth year must be provided. The school curriculum and the outside appointments must be systematized. Fatigue must be eliminated, except a wholesome physical weariness following outdoor exercise. We must see that a reasonable balance is established between work and play and that so far as possible the causes of nervous excitement are eliminated. All these matters of detail in the child's day are important factors in maintaining his health. The care of the child's body, bathing, fresh air, and exercise need to be directed from definite medical knowledge and experience."

"We should ask ourselves," Smith continues, "concerning each one of the children coming to us—is he forming healthy habits of mind or is he developing traits of character which will later become true psychiatric reactions? We know that the first five or six years is the most important period for mental growth and during that time we should endeavor so far as we are able, to direct the expanding mental life of the child into healthy channels."

### FORMS

Although there are numerous forms for recording the physical findings and other necessary data of persons of all ages from birth to adulthood, none perfectly satisfactory to all examiners, I shall describe

only three—those more in universal use and hence easy to secure. They are the Periodic Health Examination form which may be had from the American Medical Association; the development record form from the American Child Health Association; and the Infant and Preschool Conference Record which is sold by the Federal Superintendent of Documents at Washington. The two latter are for children, the former for adults. A subcommittee of the joint committee on Health Problems in Education headed by the chairman of the Bureau of Health and Public Instruction of the American Medical Association is now working on a form for children which will not be ready for adoption before the early part of next year.

The periodic health examination form<sup>28</sup> is a two page sheet 8 x 10 1-2 inches. The first page is reserved for data the examinee fills in himself, thus saving the time of the examiner. Besides the usual data pertaining to the social and civic status, it covers the occupation, conditions of work, home conditions, sleeping conditions, intervals between food intake, quantity and frequency of the use of certain foods, quantity and variety of liquids used, frequency of bowel movements, exercise, social, religious, club or trade associations, pleasures, recreations and hobbies, disposition to worry, moods, past illnesses, present symptoms, immunizations and vaccinations, accidents, operations, dental history, family history and for women a few questions concerning the menstrual history, pregnancies, etc. The second page is divided into six parts, the first four covering the physical findings, the fifth, the summary and the sixth, the written advice to the patient. The first section includes the measurements and such data as can be obtained and recorded by the office assistant, the second those physical findings best secured with the candidate for examination in the standing position, the third in the sitting position and the fourth in the lying down position.

The development record form devised by Veeder and Palmer for the American Child Health Association is a four page folder 8 x 11 inches. It is especially prepared to meet the needs of the private practitioner. It is intended for children from one to six years of age. Page one provides space for data on the development during infancy, the past illnesses, record of immunization and a brief record of men-

tal development; the second space for six consecutive physical examinations; the third, special charts for recording the growth and the fourth, records for home weighings at three month intervals with added space for notes.

The Infant and Preschool Conference Record was designed by the Federal Maternity and Infancy Division of the Children's Bureau to standardize the examinations made at the many conferences. It serves the private practitioner very satisfactorily as an office record. As it comes to the examiner it is a four page folder 8 x11 inches with an extra two page fly leaf for follow up notes and remarks. A heavy cardboard family folder can be had for filing. The first page, aside from the usual social and civic data, carries space for the family history, the infant's history, the nurse's record of the neo-natal period, record of immunizations and space for six consecutive queries into the child's habits such as sleep, exercise, hours in the sun, personal hygiene, food, intelligence, personality traits, undesirable habits, obedience, etc. The second and third pages carry columns for six consecutive physical examinations with a like number of spaces for recording recommendations and laboratory findings. The fourth has space for six consecutive queries concerning the food history, past and present, itemizing the quantity, variety, intervals between feedings, etc., and space for follow up. It is of vital importance to have a form that permits several consecutive examinations as Smith says, "Each child should be measured against his own standard."

Space does not permit mention of forms for infant use except to say there is a growing demand for "baby books" that are scientifically arranged. The best I have seen is one prepared by DeLee and Hess" which is both scientific and peculiarly ornate, something that especially appeals to the mother.

### SUMMARY AND CONCLUSIONS

The health examination is more than a disease diagnosis, a physical examination or a protective examination. Its purpose is not only to discover the present defects and diseases but the present health assets as well and in the infant and young child it is also a means of watching and measuring the development of the child.

Its ultimate goal is, for the subnormal and the "normal" child, optimal health,

and for the adult, positive health. As a corollary one might state that if all "normal" children of today (using the term as the biologist would use it) could be made optimal children and these optimal children induced to maintain positive health as adults, the young of the next generation would be well on their way towards being "ideally" normal children.

Chronologically the health examination in its broader aspects developed with the children, the infant through the "feeding cases" supervised by the pediatrists and the older children by way of the school inspections. For the adults, the creation and acceptance of the ideal of health examinations for everybody had its inception during and immediately following the World War. The Woman's Foundation for Health founded the movement in 1919. The matter was first taken up by the House of Delegates of the American Medical Association in June, 1922. The infant and preschool health examinations for all the young children, particularly as this applies to rural children, dates from the acceptance of the Federal Maternity and Infancy Act in 1921. The preschool examinations secured an added impetus in 1925, when the summer round up of the five year olds was inaugurated by the National Congress of Parents and Teachers.

The scope of the health examination is all inclusive. Not only must the physical examination *per se* be done with even more care and thoroughness than the disease examination but the candidate's mental status, habits, behavior and individual environment must be carefully inquired into.

The health prescription must be definite, clear cut and put in simple words in writing and while it deals not only with the candidate's physical self but his mental, social and civic selves as well, it must not include recommendations impossible for the candidate to carry out.

Forms for recording the findings of the health examination are numerous but only three or four are in general use, namely the Periodic Health Examination for adults, the Development Record, and the Infant and Preschool Conference Record for infants and young children. A new form for these younger groups is now being worked out by a sub committee of the Joint Committee on Health Problems in Education.

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# CHILD DENTAL CONDITIONS AND THE PROFESSION'S RESPONSIBILITY

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The health of the mouth with its economic, physical, mental and moral phases should be the concern of every citizen; especially is this true with those agencies whose objectives and responsibilities are that of safe-guarding the public health. Dental diseases are one of the most important pubic health problems of the day. The

sympathetic co-operation of the official health agencies have been unable to give the public adequate protection against all kinds of disease. Therefore, we must have the unofficial group such as the American Child Health Association, Crippled Children's Society, the National Tuberculosis Society and many others with their subsidary state and local organizations to make up the deficiency until such time as more of the taxpayers and those elected to public offices realize that a broader program of public health is necessary. I would not have you believe that all taxpayers and those elected to public office fail to appreciate the true value of public health. It has, however, frequently been seen, that the people are anxious enough to have a better program and are willing to pay the price at the expense of something else less essential and some of their official representatives deny them the privilege.

The child problem of today is primarily a health problem of such magnitude in relation to the public welfare, that it is attracting and demanding, as it never has before, the attention of those more directly charged with the responsibilities of providing adequate protection. President Hoover so thoroughly appreciates the true value of child health service that he has selected a committee of fifteen, headed by Dr. H. D. Barnard, who is Commissioner of Health of Indiana, to insure a better relationship between the government and the child.

No committee or organization should attempt to develop and carry on a program of dental health education within the state, without first consulting the proper representatives of the different health organizations in order that there may be a complete understanding, harmony of purpose and no duplication of effort. The inter-relationship of the causes and effects of dental and systemic diseases are such as to warrant the sympathetic co-operation of all health agencies if they are to render the greatest possible public service. In this connection, irregularities of the teeth, dento-facial deformities, decay, loss of teeth and infections about the teeth have been found, upon strict scientific and clinical investigation, to be directly and indirectly responsible in causing an astonishingly large number of systemic diseases.

Dental lesions are seldom recognized by the public as causing death as they produce secondary conditions such as nephritis,

endo-carditis, toxemias and predispose the individual to numerous other diseases to which death is attributed. On the other hand, practically all constitutional and systemic diseases are conducive to dental disease. It is this inter-relationship of diseases that make it so necessary for us to consider the subject in all its different phases.

Dental caries is the most common disease known to the human family and peridontoclasia or disease of the gums and supporting structures is second. About seventy-five per cent of the school children in Oklahoma are dentally defective. This is based upon an inspection made by dentists of ten thousand school children in both urban and rural schools. It is conservatively estimated that twenty-five per cent of those examined have confirmed and conspicious cases of malocclusion or irregular teeth. The mouth is a fertile place for the propogation of disease producing germs as it contains those essentials which are so necessary to the life and reproduction of pathogenic bacteria. As it has a copious blood supply and is the gateway to the respiratory and digestive system, it becomes easy to understand how the many different forms of disease germs can successfully invade the system of the individual by these routes. While the common specific and contagious diseases of children, such as measles, whooping cough, scarlet fever, and tuberculosis can not be recognized as being of dental origin, it is safe to assume that they are frequently an important contributory factor by weakening the resisttance of the individual. The same applies to digestive dusturbances, adenoids and diseased tonsils. In some cities where school dental clinics have been operating for two or more years, it has been noticed that many diseased tonsils seem to improve to the point where an operation is considered unnecessary after the teeth and mouth have been placed in a healthy condition. Children having badly decayed teeth and unclean mouths are carriers of contagious diseases which are easily transmitted by careless spitting, the common drinking cup and improperly cleansed eating and drinking utensils.

The detrimental effects of dental disorders are best calculated by making a comparative survey of the actual conditions present. To illustrate: a dental inspection was made in 1924, of all the children in the Lee School of Oklahoma City.

About 80 per cent were found to be dentally defective. The survey was followed by the establishment of a dental clinic with a dentist visiting the school one half day a week. A second survey, one year latter, showed that about 65 per cent needed dental service. The dental clinic was continued the second year with the patrons' club financing the clinic. The principal reports that there was a drop of from 45 repeaters for the year in advance of the dental health service to only 19 the succeeding year, which is a reduction of over 100 per cent. There was an increase of 1.8 per cent in attendance. This school is conducted on a very high educational plane, with special rules and provisions made for reduction of demotions and repeaters in opportunity classes. It, therefore, does not offer a fair opportunity for the dental program to make a real demonstration in figures. Figures do not adequately tell the story for it was the exception to find a child with a real dirty mouth after demonstration. A large number of children below par mentally and physically were restored to health by the removal of infected teeth and roots and the same operation was responsible for the correction of a large number of cases of mal-nutrition and digestive disorders. The teachers and school dentist will tell you that they frequently marvel at the rapidity with which some little emaciated looking child will improve after having its dental defects corrected and being taught some real health habits. Innumerable scientific and clinical investigations have been carried on by research workers and those interested in education to prove beyond a doubt that dental inspections and instructions on dental hygiene in the schools are of practical value.

The subject of dental health must necesasarily involve both the medical and dental profession. This being an age of prevention, it naturally entails a comprehensive study and extensive research investigations to provide adequate scientific knowledge to meet the problems. One of the most discouraging factors in this connection is to see so many of our professional men failing to put into common practice the well defined scientific, preventive, reparative and curative methods that have already been firmly established. The physician and dentist should realize at all times, that the future well-being of the child is largely dependent upon the kind of treatment and advice he offers. It is far too

often observed that much harm and many times irreparable damage has been done by well meaning physicians and dentists by advocating a treatment or giving counsel of a faulty or careless nature. There is a tremendous need for a better understanding and working knowledge between the two professions. The good of one is dependent upon the other and any noteworthy advancements in the reduction of dental deformities and caries of the child's teeth must come about through a more effective understanding between the two.

Anomalies of the teeth and dental disease in children have reached such proportions as to need the whole hearted support of all health agencies for their proper solution. While some progress is apparent in more recent years in the prevention of decay, other serious conditions such as faulty eruption and anomalies with their subsequent facial deformities, that impair the health of the body as a whole, are unmistakably on the increase.

Child dentistry (Pedodontia and Orthodontia) is fast becoming the most important branch of dental health service. The dental profession is rapidly being taught that to neglect the child because of the undesirable nature of the work is gross negligence and in addition, the education of the parent is fast pushing the careless and indifferent practitioner out of the way.

One of the next great advances in the prevention of disease and deformities, must come from a better understanding and appreciation of the laws of eugenics. This is a matter that is receiving scant attention. Men and women are unrestrictedly allowed to enter wedlock with all kinds of mental and physical deficiences and allowed to expect normal, healthy children.

It is a generally accepted fact that if we are to improve dental health, our efforts must start during prenatal periods as the teeth start to develop about the sixth week of inter-uterine life. Bones and teeth are largely calcium, and if it is true that as a people we are being starved of calcium; now can we expect anything but the very problems with which we are continually confronted. It is not enough that there be a sufficient amount of calcium, it must be balanced with other elements and conditions must be right for their absorption and assimilation.

The various disturbances of pregnancy, errors of diet, vagaries of appetite, lack

of exercise and pernicious nausea may, and probably always do, have more or less of an effect upon the future dental development of the child. It is during this period and that of infancy in which the physician should be greatly concerned about the quality of the child's teeth. These are critical months of the child's future health and well-being depends upon the conditioning of the mother.

Before entering into any definite advise in regard to methods and means for the care and protection of baby teeth, it is necessary to explain the important functioning of these teeth, their relation to growth and development of all parts of the head and the reflection of this process of head growth in the general growth and welfare of the child.

During infancy, all parts of the head grow rapidly, and in the case of the normal child, many parts have reached adult dimensions by the time the child is seven years of age. During this most rapid growth period of the child's life, the deciduous teeth erupt. In addition to the baby teeth, the first permanent molars are usually found to be fully erupted within this period of time, and possibly the lower baby central incisor teeth have been shed and the permanent ones have taken their place.

Too much emphasis cannot be employed in stating the fact that it is during this all-important period of infancy and early childhood that the teeth should receive the most careful attention. Their full and unimpaired use is a prime aid to that rapid growth of the head, and any interruption of which has a serious and permanent effect on the general development of the child.<sup>1</sup>

Dr. T. W. Sorrels, who is recognized as an authority on the subject of orthodontia, states that our civilization has so rapidly changed its habits and modes of living with each succeeding generation that the teeth are changing in quality, size, position and number.

One of the most noticeable and detrimental conditions coming about as a result of this revolutionary process is the greatly increased number of children having malposed teeth and disfigured faces.

Orthodontia is a comparatively new science and has been evolved of necessity for the prevalence of malocclusion among the civilized peoples of the world is existent to an appalling degree. Even the most causal observation will impress one with this fact, if they will but take the trouble to study the faces and mouths of those with whom they come in daily contact. In many instances the condition may be trivial, but a close observation will reveal the fact that thousands of people are afflicted with maloccluding teeth, which have not only seriously impaired the efficiency of the masticating apparatus, but have stamped the faces of those afflicted with the indelible mark of deformity. The sad part about it is to think that, upon careful investigation of the situation, about seventy five percent might have been prevented if the nasal passages had been kept free from obstructions, such as deflectel septums, hypertrophied turbinates and adneoids. In addition, the throat should be maintained in a healthy condition and the deciduous teeth retained their full alloted time and the child kept from acquiring any bad habits of thumb sucking, faulty sleeping and others of a similar nature, all of which are easy to recognize and correct in time to prevent serious disturbances.

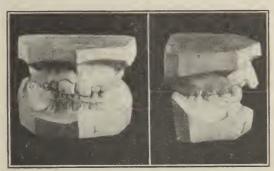


FIG. I



FIG. II

Figures 1 and 2 represent a type of malocclusion, which is almost invariably caused by nasal obstructions, chiefly adenoids,

which usually cause impaired health and mental deficiency as well as produce an

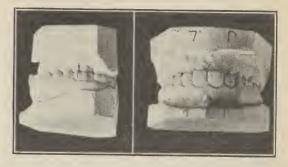


FIG. III

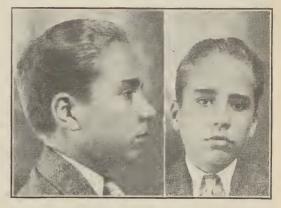


FIG. IV

unsightly dento-facial deformity. Figures 3 and 4 represent the case after having received orthondontic treatment. The results of such treatment is perfectly evident.2 Many times the children suffering from such a condition are operated upon by the physician with the expectation of it correcting the mouth breathing which principally is impairing the child's health. The child must of necessity continue to breathe through the mouth on account of the deformity. For want of a better understanding, it is usually called a habit. These advanced cases can only be satisfactorily corrected by establishing harmony in the size and shape of the bones and necessitates early orthodontia treatment following the surgical work.

Most of the stupidity observed in school children is due to poor health, and much of the poor health is directly traceable to bad teeth. Failure psychologically suggests to the child that he is a blockhead—that he cannot learn and make the grade as the other children do; and self-pity or discouragement will probably be the handicap

with which he approaches subsequent tasks.

The baby teeth are all important; the unimpaired use of sound baby teeth guarantees a better preparation and therefore, a better assimilation of food for nutrition. The child in proportion to its weight, must eat and assimilate about three times as much food as an adult. The muscles of mastication are developed evenly and the normal growth of the jaws, through the unimpaired use of the baby teeth, is favorably reflected in the size of important air passages leading from the nose and throat. These passsages serve directly and indirectly in the proper aeration and oxygenation of the blood. If the baby teeth are in full use, the eruption of the permanent teeth will occur in more regular and correct position. Unimpaired baby teeth are a mental and physical comfort to the child and promotes happiness and a general good disposition.

The presence of decayed or infected teeth is the underlying cause of much of at the teeth as well as the throat or feel the pulse. The time has passed when the large number of toxemias and digestive the illness in both adults and children. Abscessed teeth are responsible for such a disorders in children that physicians should make it a rule in diagnosis to look entire education of the child is devoted to mental development while his physical welfare is neglected. The late William Osler, the most eminent medical authority of his time had this to say to a graduating class in medicine. "You have one gospel to preach, early and late, in season and out of season, and that is the gospel of a clean mouth, clean teeth and a clean throat. These three things must be your text through life." Our schools are crowded to overflowing with children pronounced to be "well", yet, have infected mouths which are undermining their health just as surely as cheesy and necrotic tonsils will do so. Demand that the family dentist bear these simple principles in mind and see that each so called "well" child is allowed to remain so. Neglect and misinformation by the unscrupulous and uninformed is responsible for over fifty per cent of the ills in the so called "well" child. This practice has a well defined prohibitive significance to the school child.

A well organized plan of dental health will prevent much physical suffering, and not even a few of us should be willing to condemn others to suffering if a remedy to prevent lies conveniently at hand.

In an effort to apply a remedy to the appalling state of affairs, the pendulum of health service, in recent years, has swung from repair to prevention. There is really no justification for the present-day conditions which exist in the mouths of the people of America. This condition should never have developed, and undoubtedly would have been prevented if its evil effects had been properly understood by the public. It is the wise or unwise advise of the dental and medical practitioner that does much in moulding the lives of little children—it is their duty to qualify themselves or send the child to someone who is qualified to render the kind of service that is needed."

Tooth decay is largely a preventable disease. The routine practice of correct brushing of the teeth, together with a well balanced diet with the proper selection of foods to meet the individual's needs, coupled with periodical examination and a further observance of the laws of health, will in a large measure illuminate the faulty conditions existing in the mouths of the children.

A united effort on the part of the professions will naturally meet with little success in the way of eradicating the dental ills of the child if care is not exercised in the selection of the practitioner. Select a dentist who understands and appreciates the value of children's dentistry and is fitted temperamentally to care for the child. Success or failure rests entirely upon the selection made. Many dentists make no excuse of the fact that children receive the minimum of care at their hands. This of course is a lamentable state of affairs, so as physicians, you must exercise your right of authority by intelligently advising the parents as to the desirability of reconditioning the mouths of the dentally ill child. If these suggestions are accepted and put into practical application as a rule of practice, the results will be of great value to you and your patients.

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- 2. T. Wallace Sorrels, Dental Health Service, W. K. Y.
- 3. P. G. Puterbough, Dentistry as a Civil Obligation, J. M. D. A.

# INFANTILE ECZEMA

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Eczema is the commonest of the dermatoses of childhood, and to open this subject is to choose one in which there are many and varied opinions. A concrete definition of this affliction of the skin is hard to give, as the opinions of experts in this field of medicine range from a true dermatitis of external origin, to a manifestation on the skin in answer to a systemic reaction. The true answer involves both of these extremes, as there is undoubtedly an element of each in most cases of infantile eczema. Some patients are born with the eczema tendency, that is they are born with a skin predisposed to the exudative erythemas. Some are born specifically sensitive, those that carry a personal factor of susceptibility. This often manifests itself in childhood when tissue stability is not yet developed and metabolic activity is high. However, just what eczema is, what constitutes eczema, and how it can rightly be defined, are questions upon which there are diversities of opinions. Infantile eczema is clinically and pathologically identical with other eczemas, only it has a symptom medley peculiar to infants and children. That is, it is an affliction of early life where metabolism is unstable and skin is tender. In studying this subject it is of interest to compare the opinions of the earlier writers with those of more recent date. Bateman and Willan confined the term to a process in which vesicles were an essential lesion. The meaning was afterwards enlarged, especially by the French, to include nearly all the skin lesions that were in seeming relation with constitutional dyscrasia such as gout, rheumatism and other pathological phantoms which were held accountable for these varied disturbances. Going to the other extreme, Hebra, and after him the Vienna School, (Kaposi, Finger, Oppenheim) taught that eczema is purely a local disease which can be artificially excited by external irritants. That is, the process is simply superficial inflammation of the skin dependent upon some external cause. Later writers, Pusey, Fordyce, White, Whitfield and most pediatricians returned somewhat to the older idea, and give more importance to the metabolic processes but state frankly that external

irritation and susceptibility play a great part. There is yet the pathological X undetermined.

Pathology: The clinical evidence and the investigation of most observers point convincingly to the catarrhal nature of the disease. Thus it is a catarrhal inflammation of the skin. Accepting a predisposed. weak or debilitated skin from heredity or other causes and the action on such a skin of various stimuli or irritants (Darier, Broca, Fordyce) either from within or from without or from both, will give us our most acceptable explanation of this pathological process. This irritation may start in the form of parasites or microorganisms (Unna, Hebra) or from the products of these, (Gerlach, Grey) or other irritants. Such irritants, heat, actinic, chemical, etc., may be contributory or outstanding in causing the reactionary inflam. matory process called eczema. Torock and Neisser believe the disease to be an amicrobic process but admit that there might be a germ element in the later disease processes. Leloir has suggested that the symptom of itching may have its etiology in a primary nerve involvement but other men believe this to be entirely a secondary manifestation. The bacteriology of eczema has been extensively studied by Engman, Sutton, and Fordyce. Engman especially has called attention to the action of pyogenic staphylococcus as a causative agent and has suggested the term infectious eczematoid dermatitis for this type. The histo-pathology of eczema has received the attention of almost every dermatologist of note but it remained for Unna to give us the classical description of the pathological anatomy. Outstanding men differ as to whether the earliest changes are in the epithelium or the papillary layer. The formation of vesicles is another point of divergence of opinion. It is generally conceded, however, that the earliest and most frequent formation of vesicles are by degeneration and expansion in the epithelial cells. The pustule is simply a vesicle with leucocytes added. Parenchymatous edema is then noted in the transitional epithelium and granular layer, thus hindering the process of proper repair. It can be observed from this short description that this process is distinctly an inflammation with a predominance of serous exudation and this is especially true of acute infantile eczema.

Etiology: In reviewing this phase of the subject space permits only a brief discus-

sion. Heredity is one of the first influences to be considered. Though much evidence is lacking in a large proportion of cases the fact still remains that heredity plays a part. A certain number are born specifically sensitive to proteins and pollens and others are marked with that unknown element of susceptibility. It is very possible that these tendencies alone are never responsible for the disease, but such individuals present the disease when subjected to other contributory and exciting factors. The influence of external irritation is undoubtedly a causative influence in a major. ity of cases. Pusey has said, "The extent of an eczema depends upon the extent of the irritation which produces it." In some cases this irritant can be discovered. In others it cannot. Here again we are confronted with the question of what is eczema and what is dermatitis? In a sense we must limit the term eczema to certain forms of dermatitis ruling out that of a violent nature. Then the external irritants are numerous. These include chemical, thermal, mechanical and actinic. Chemicals as an irritant in infantile eczema are probably outstanding in the form of soaps and other toilet preparations. These either excite a mild dermatitis directly or lower the resistance of the skin so that dermatitis is readily excited by other causes. Once established even water is a distinct excitant.

The thermal or actinic factors in producing an infantile eczema are probably of least importance. A mild sunburn could easily excite an already susceptible skin. Among the mechanical irritants friction undoubtedly comes first. Hot or cold wind or a mild amount of scratching could produce a mild dermatitis from which there is only a short step to a true eczema. The next step then is infection.

The external causes of eczema come more under the head of predisposing than exciting. The lowering of the general resistance including the skin renders it unable to withstand the ordinary irritation to which it is subjected. These influences act frequently through the vaso motor nervous system and produce a disturbance similar to the erythema group of dermatoses so fitly described by Osler. In infants as in adults an important influence in bringing on attacks is over eating with the consequent digestive disturbances which follow. This is in part responsible for the old idea that infantile eczema is seen only in fat babies. Renal deficiency also comes

in for its portion as an excitant (Bernhardt and Rygier). The association of eczema and asthma has long been known and this brings us to the subject of eczema and sensitization. Many cases of infantile eczema are specifically sensitive but as a sole etiological influence this can be easily over rated. It often prepares the field and ordinary irrritation produces the eczema. An important influence in this connection is that of heredity (Balyeat). The foods to which these children are sensitive are usually the commonest and most important in their diet—eggs, milk, cream of wheat, etc., and we are often presented with the problem as to which we would rather have —a possible exciting influence on the eczema or a feeding case that easily becomes complicated.

Seborrhea as an exciting and contributory element in infantile eczema cannot be overlooked. To Unna goes the credit of clarifying this relation. His original conception announced in 1887 has met with but little modification. Oppenheim says that 40 percent of infantile eczema is seborrheic in origin. So it behooves us to give our attention to the scalps of these little patients.

Treatment: The principles of treatment in infantile eczema are: first, to treat the most outstanding symptoms, remove the external irritation if possible, build up a resistance in the skin, and correct internal disorders. Then a careful history of both the mother's diet and the diet and care of the baby must be taken and a repeated examination of the stools. Food sensitization is of importance and in breast fed infants the problem of sensitization is more complicated, and food tests are of value. Other substances such as wool, feathers, hair, etc., are of less importance yet must not be overlooked. In the bottle fed babies the element of sensitization is much easier controlled. These cutaneous tests should be made by some one thoroughly equipped for the work. In some cases these tests as diagnostic and clinical measures are very striking but as a routine, clinical experience does not bear this out. Then this may be considered only as contributory factors in these cases. Too strenuous an effort in the correction of food sensitization is of no small moment, as it leads to a pitfall—the therapeutic paradox; and as in syphilitic hepatitis, as Wile has expressed it, the patient might die of the cure of his own disease. Of course in infantile eczema this

is only true in so far as a food deficiency disease is produced by the limited diet. It is possible in this connection through careful management to desensitize some of these babies. The baby should be under the care of one who is accustomed to the problem of infant feeding and very careful attention should be given to the slightest form of gastro-intestinal disorders. In well nourished babies the milk should be diluted more than has been the practice and the sugar content should be restricted. Mild aperients are of use in most of these cases at the beginning of treatment. The question of turning these children over to the care of the pediatrician totally is one of some dispute. I think there should be a close cooperation between the dermatologist, the pediatrician, and the immunogolist, but so far as possible the dermatologist should direct most of the care. There is rather an old idea especially in the general profession that infantile eczema is entirely a systemic and dietetic problem. and that local treatment is of little importance. I think this is entirely refuted by the results usually obtained by this narrow idea of treatment. The thing that brings the patient to the doctor is the marked itching and as this is the outstanding symptom it should receive first attention. If crusts are present these should be removed as they only harbor infection and excite the symptoms. A nice preparation for this purpose is boric acid and resorcin water with 1-2 to 1 percent phenol used as wet dressings. Another preparation is a bland oil or vaseline containing 1-2 percent phenol. After these surfaces are cleansed and the weeping is controlled I use crude tar ointment made after the formula of White; and alternate this with a thin calamine lotion using the ointment at night and the lotion in the day time. To remove the ointment, olive oil or cold cream is used. There has been some modified tar distillates put on the market lately but I have found these far inferior to the old formula first suggested by White. It seems that from these tar distillates there has been eliminated some of the phenols which have a beneficial action. The problem of the application of the tar ointment is one which bothers many. I find it best to cover the affected part with a thin layer of ointment and hold it in place with a mask. Another alternate for the ointment is the calamine liniment suggested by Pusey. In the acute weeping type of eczema, an astringent wet dressing of aluminum acetate acts admirably. These may well precede the tar ointment. An ointment, naphthalan, has been suggested but I do not find it to compare with the crude coal tar. We must be careful in the prolonged application of tar as here we might find a soothing application turned into an irritant.

The seborrheic type of eczema represents a great portion of this affliction. Space does not allow it to be considered thoroughly. The scalp of these patients should always be inspected and the slight "milk crust" we often see should not be ignored. Whenever this is noted a treatment for seborrheic eczema should be instituted.

To control these small patients is often a great problem. It has been called cruel to restrain them but this is very necessary as a measure of treatment. A little scratching can easily undo a week of therapeutic efforts, so it is essential that this be prevented. There are many means by which this can be accomplished; the hands may be muffed with gauze, a pillow slip may be used as a sort of straight jacket and pinned to the mattress; sleepers with closed arms and legs may also be employed. The child will submit to these jackets with no resistance after a short time and they add a great deal both to the comfort of the child and the doctor. I have not resorted to the use of X-ray in these cases as there is always a danger in these tender skins of a telangiectasis and an ever present public willing to sue. The whole principle of treatment must be kept in mind, that is, to sooth the irritation of the skin and allow a resistance to be built up and to correct systemic disorders. Each case of infantile eczema is a separate problem and we cannot standardize the treatment or reduce it to a text-book formula or drug-house therapeutics.

413 Medical Arts Building.

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# EDITORIAL

### OUR PEDIATRIC ISSUE

Some months ago in a conversation with an Oklahoma City physician it was decided to attempt to publish an issue of the Journal devoted entirely to the problems of child health and pediatrics, especially those which now confront the Oklahoma physician. Thousands of Oklahoma children, former students, are entering school, while other thousands, very young and tender, are entering for the first time. Many of these have no protection whatever from their parents, and their environment and daily life precludes any protective measures against their acquiring any one of many illnesses, ranging from mere in-

conveniences to those resulting in fatalities.

This issue of the Journal is composed of articles upon "Respiratory Infections in Children"; "Tuberculosis in Children"; Hypertrophic Stenosis of the Pylorus"; "Diagnosis of Foreign Bodies in the Air and Food Passages"; "The Importance of Endocrinology in Pediatrics"; "The Health Examination"; "Child Dental Conditions and the Profession's Responsibility"; "Infantile Eczema."

Respiratory Infections, problems incident to endocrine dysfunction, tuberculosis and dental conditions are enormously prevelant, while the other conditions must always be borne in mind. The important thing, if it can be impressed upon parents and school boards, is a general physical examination of all children, but that is presupposing almost the millennium.

The object of this issue, of course, is to emphasize to the general practitioner of Oklahoma some of the problems of infantile and juvenile life which he may be called upon to combat. If he is thoughtless and unprepared his cases may be listed among what more often should be the mere inconveniences, but become the fatalities.

# MEDDLESOME INTOLERANCE

In an address to the House of Delegates, at Portland, the president, Dr. Wm. S. Thayer, Baltimore, concluded his remarks as follows:

"But there are lengths beyond which a majority may not go. When in a country like ours the national government attempts to legislate for the whole country as to what we may or may not eat or drink, as to how we may dress, as to our religious beliefs or as to what we may or may not read, this is to interfere with rights that are sacred to every English-speaking man. This is no longer republican government; it is tyranny. In the long run we English speaking people will not endure tyranny. For immediate concentrated mass action such as is necessary in time of war. such government is necessary. We accept it; we demand it. But in time of peace we insist on certain local and individual liberties which we regard as rights.

The Congress of the United States is not made up of men who desire to establish a tyranny. Far from it! But in certain ways,

against the warnings of wise and temperate men such as the Chief Justice, they have passed laws which are intemperate, meddlesome and may justly be regarded as tyrannical. As a nation, we have of recent vears set a rather sorry example in the passage of inconsiderate, ill considered and intolerant prescriptions and prohibitions. prescriptions and prohibitions some of which may be proper enough in certain localities where they represent the desire of the majority, but which, when applied to the country at large, interfere with the personal liberties of the people. Such laws cannot be enforced: they defeat their own ends. Intolerance is the most fatal enemy of liberty.

No legislative body can fail to make mistakes. At times this House has made mistakes—and, to its credit, has acknowledged them. But at the end of my term I desire to testify to my admiration for the spirit shown by the officers who are the managers and directors of your association and for the temperance and good judgment of this body. You will forgive me saying that at this hour when as a nation we are in some respects setting a rather sad example of reckless and intemperate law making, it is especially desirable that, while discussing matters with all freedom, we should try hard not to be carried away by the spirit of the time; that we should carefully consider all sides of the question before us. Let us try to find the happy mean and realize that, with regard to most questions, tolerance and moderation and consideration for local opinion and conviction, and wise general recommendation, often have greater force than hasty and ill considered decrees and prohibitions.

This body in the past has set an enviable example of wisdom and restraint. Let us continue to be true to our tradition."

Commenting upon the above, the New England Medical Journal (b) notes that Dr. Clarence True Wilson, who by the way is not a "doctor" but belongs to that fraternity, who when they transgress the bounds of moderation and good sense, are often alluded to as "sky-pilots"; took exception to Dr. Thayer's remarks declaring that "dragging the legal and political question of prohibition into an annual address before the Medical Association is a questionable proceeding, unpatriotic and out of taste."

We have suggested before that Oklahoma physicians are helpless in such matters as the prescribing of alcoholic liquors, regardless of how badly and desperately a physician may need alcoholics in some form occasionally, yet he has no legal way of securing it, prescribing it, ordering it, or administering it. Yet surely the most intolerant of prohibitionists will not contend that there are occasions when alcoholics in some form, is not a life-saving measure.

The Journal fully agrees with the statement of Dr. Thaver and we feel intemperate enough to go further and use coarse. language by asserting that Congress, dictated to by certain elements of pop-eved reformers has exceeded the bounds of good sense, and, measured by legal views as applying to other problems of national interest, at the behest of the same intolerants, have forced the medical man into a situation never dreamed of by the makers of the Constitution. Evidently Dr. Wilson and all his ilk seem to overlook the position of Dr. Thayer and the mass of the medical profession, the principle of which may be stated, is that the medical profession believes that it is the sole and best judge as to its own affairs, that the invasion of its rights by Congress, or the dictation of its acts by Congress or anyone else, in a purely professional matter, on the face it is silly, absurd and senseless.

So far as is known Dr. Thayer is an abstainer from the use of alcoholics, the writer is practically an abstainer from the use of alcoholics and has been for a long time. For five years the writer has had free access to unlimited amounts of various forms of alcoholics for legitimate use in treatment of illness. As a matter of fact very little of it is necessary in the legitimate practice of medicine, especially for internal administration, but at times it is vitally necessary to life, has no efficient substitute and deprivation of it by legal subterfuge is an inexcusable outrage. The Journal, as representative of good citizens, the organ of hundreds of good Oklahoma citizens, however, resents and protests the interference of non-medical men in the most difficult of problems, those confronting the man following the profession of medicine. We do not think it expresses good sense or good taste on the part of professional prohibitionists to attempt to criticise and belittle the mature judgment of a great citizen and scientist

as embodied in the person of Dr. Wm. S. Thayer.

- (a) Jour. A. M. A., Vol. 93, Number 3, July 20, 1929.
- (b) New England Jour., Vol. 201, Number 5, August 1, 1929.

# Editorial Notes -- Personal and General

DR. L. T. GOOCH, Lawton, visited the clinics at Rochester in August.

DR. W. R. MARKS, Vinita, visited the Rochester Clinic during August and September.

DR. C. A. BEELER, formerly of Pawnee, announces his removal to Cherryvale, Kansas.

DR. and MRS. ELLIS LAMB, Clinton, have returned after a months' visit to western coast points.

DR. J. L. REYNOLDS, Tulsa, announces his removal from 812 Medical Arts Building, to 723 Mayo Building.

DR. and MRS. EMORY S. CROW, Olustee, have returned from California where they spent the past month vacationing.

DR. C. A. THOMPSON and family, Muskogee, spent two weeks at Rochester and Minnesota points in August and September.

DR. W. J. TRAINOR, Tulsa, spent the month of August in Boston, taking special work in Cardiology under Dr. Paul White at the Massachusetts General Hospital.

DR. T. W. STALLINGS. Tulsa, suffered a fractured fibula on June 16th, while mowing the lawn. He is now able to be at the office, and reports that he is getting along very well.

DR. ROBERT E. THACKER, Lexington, is taking an extensive course in electro-therapeutics in Indianapolis, Philadelphia and New York. He will return to his home on October 1st.

DR. CHARLES RICHET JUNION, Professor of Medicine, University of Paris, Paris, France, lectured at the Balyeat Hay Fever and Asthma Clinic on "Food Anaphylaxis" September 7th.

DR. C. DOLER, Elk City, has returned from New Orleans, where he has been attending the Tulane Medical College for the past year. Dr. Doler is connected with the Tisdal Hospital, Elk City.

DR. and MRS. W. J. ADAMS, Ponca City, have returned from El Paso, Texas, where Dr. Adams completed a 14-day assignment at the army reserve officers' camp at Ft. Bliss, serving as a captain in the Eighth Cavalry.

DR. GEORGE R. OSBORN, Tulsa, is recovering from a succession of so-called minor but incapacitating ailments, the latest complication being a neuritis which he declares is the most severe type of pain known to man. He hopes to be able to resume practice in the near future.

### DOCTOR HENDERSHOT DEAD

As the Journal goes to press the shocking news of the death of Dr. Claude T. Hendershot, Tulsa, President of our Association, due to an attack of apoplexy, becomes the sad news of the day. His death occurred Sunday, September 8, midnight, after less than twelve hours' illness. He was apparently in splendid health.

Dr. Hendershot was born in 1875 in Indiana. He graduated from the Kentncky School of Medicine in Louisville, in 1897. He has been located in Tulsa since that city was a small town. He was general practioner of medicine, Secretary of the Staff of St. Johns Hospital, as well as President of the Tulsa County Medical Society.

Suitable resolutions and memorials will appear later in this Journal.

#### DOCTOR JOHN ROBERT COLLINS

Dr. John R. Collins, age 50 years, a practicing physician of Nowata since 1908, died at St. Joseph's Hospital in Kansas City, Mo., Tuesday, August 13th, 1929. Complications following an operation for appendicitis.

Dr. Collins was a graduate of Grant University, Chattanooga, Tenn., and after receiving his degree he practiced in North Carolina for several years. He came to Oklahoma in 1908, settling at Nowata, where he resided until his death.

He was a member of the American, State and County Medical associations, having served as secretary of the local association since its organization. He was also a member of Akdar Shrine at Tulsa, McAlester Consistory, Blue Lodge at Culberson, N. C., Sunrise Chapter, O. E. S., Nowata, and B. P. O. Elks.

He is survived by his widow, one daughter, four sons and three brothers.

Funeral services were held August 15th. The Masonic Commitment Service being given at the grave. Interment was in Nowata Cemetery. Deceased was one of the most popular physicians in Northeast Oklahoma, and this was attested in the large funeral and the number of beautiful floral offerings. The funeral of Dr. Collins was the largest ever held in Nowata county.

# EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

# Intracapsular Extraction without Iridectomy, Morton, H. McI.: Am. J. Ophth., 1929, xii, 90.

A brief sketch of the history of intracapsular extraction of cataracts is given. The author believes that a round pupil is essential for an ideal cataract operation. In his last twenty-six intracapsular extractions, he performed an iridectomy only once. In the twenty-five cases without an iridectomy the visual results were good. In eighteen, the pupils were perfectly round. In seven, there was iris incarceration, but this seemed to have little effect upon the vision.

In the author's technique, an 8 percent cocaine solution with adrenalin is instilled four times, the lashes are cut, the conjunctival sac is irrigated with a 1:10,000 solution of bichloride of mercury, and the conjunctiva is mechanically cleaned by vigorous rubbing with cotton soaked in the same solution. Further irrigation is then done with sterile water. The pupil is dilated by atropine unless there is increased tension. The lids are controlled with a speculum. The unmutilated iris helps materially to restrain vitreous prolapse, but if prolapse occurs the lids are immediately closed. The bandage is left on from six to eight days unless the eye becomes painful.

# The Modified Radical Operation on the Mastoid, Smith, C. H.: Arch. Otolaryngol., 1929, ix 135.

The modified radical operation on the mastoid is indicated particularly in cases of chronic otitis with small perforations in the upper part of the drum and relatively good hearing. It may be performed also in those with good hearing on the affected side and nearly total loss of hearing on the opposite side. In cases of the former type and in many cases of the latter type a dry ear with cicatrization and at least conservation of hearing may be expected. Another advantage of the operation is accelerated healing.

The author cites the experience of various surgeons with the modified radical operation and reports several of his own cases in which it was performed.

# Diagnostic Uses of Lipiodol in the Paranasal Sinuses, Frazer, R. H.: Radiology, 1929, xii, 6.

The author has found examination of the paranasal sinuses with the aid of lipiodol introduced by injection or "suffusion" of great value, especially in baffling rhinological cases. He describes the technique used in introducing the oil and in making the roentgenographic study, and illustrates the types of problems suitable for investigation with iodized oil by reporting four cases in some detail.

The method is of value for the following purposes:

1. To rule out sinuses which are cloudy to transillumination and primary roentgen-ray examination soley because of anatomical peculiarities.

- 2. To determine which sinuses are affected and which unaffected by a pathological process.
- 3. To reveal extension to the sinuses of neighborhood inflammation or malignancy.
- 4. To determine the effect of conservative treatment over a period of time.
- 5. To determine what grades of anatomical change in the various inflammations are capable of resolution without radical surgery.
- 6. To determine the type of operation indicated and the direction of approach and the drainage.
- 7. To determine the site of the pathological tissue which is to be removed and the site of attachment of polypi.
- 8. To check the success of preceding surgical procedures.
- 9. To determine the cause of chronic symptoms following operation.

From the purely roentgenographic point of view the method is of value because it reveals beginning changes earlier than other methods, reveals soft tissue growth, multiplies the number or extent of separation lines so that they may be interpreted, and reveals the thickness as well as densities.

# A Dermoid Cyst of the Floor of the Mouth; Report of a Case, Figi, F. A., and Harrington, S. W.: Surg. Clin. N. Am., 1929, ix, 89.

True dermoid cysts are rare in the mouth although they occur frequently in other parts of the body. They are believed to be of congenital origin but often do not become evident until early adult life. The patient with a dermoid cyst of the mouth may be unaware of its presence until it interferes with speech or becomes large enough to cause a visible submaxillary swelling.

The differential diagnosis frequently depends upon microscopic examination although ranulae and mucous cysts have thin, glistening walls and a bluish appearance whereas the wall of the dermoid cyst is thick and often pits on pressure. The treatment of dermoid cysts is complete excision.

The authors report the case of a boy fifteen months old who had a dermoid cyst beneath the tongue and a sinus beneath the chin from which a thick creamy material was readily expressed. Physical examination was otherwise essentially negative. The cyst was removed through an extraoral incision without rupture of the mucous membrane of the mouth or of the cyst. Recovery was uneventful.

# TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

Industrial Tuberculosis, Sidney J. Shipman, M. D., Jr. A. M. A., vol. 93, No. 4, p. 257.

The industrial hazards as they affect tuberculosis, are trauma, exertion, dust inhalation, the inhalation of chemical substances, and poor working conditions.

The effect of trauma may be either local or

general. The general effect may be loss of appetite and weight, fatigue-resulting from pain with its consequent lowering of general resistance. Unusual exertion may be followed by hemoptysis or spontaneous pneumothorax. A soft lesion, possibly with thin-walled cavity. These accidents might have occurred without injury, then the disease itself should be considered the predominating influence.

Tuberculosis may follow pneumonokoniosis and indirectly be industrial, but definite evidence of the primary condition should be the criterion of the industrial phase. Assertions have been made that tuberculosis is the result of inhalation of various chemical substances; ammonia, sulphur and various acid fumes, but exposure must have been prolonged and led to impairment of the general health.

The author states that he has never seen a case of industrial tuberculosis which could be ascribed to poor working conditions. He thinks insufficient rest and food, which often go with this type of employment are the leading factors.

Tuberculosis of the Gall Bladder, James T. Case, M. D., Annals of Internal Medicine., Jan., 1928.

"Tuberculosis of the gall bladder is one of the rarest of pathological findings."

The author gives a brief synopsis of the eight cases that have been reported in the literature. reports his own case which was the first one reported in America, and concludes by saying that tuberculosis of the gall bladder has no clinical entity and cannot be differentiated clinically from other forms of cholecystitis. Its diagnosis rests entirely upon the pathological examination. The mucosa possesses a very high degree of immunity against infection by the tubercle bacillus. When such an infection does occur it is probably always an excretory infection, by way of the bile, of bacilli arising from some other tuberculous focus, latent or active, within the body.

The Benign Course of Apical Tuberculosis, Maurice Fishberg and Arnold Shamaskin, Journal of A. M. A., Vol. 93, No. 2.

Patients with apical lesions may keep well for many years even though they cough, expectorate blood at times, and even have tubercle bacilla in the sputum. It appears that the majority of these apical lesions have a benign course, show no tendency to spread, and only rarely develop symptoms of active, progressive, and fatal tuberculosis. The authors examined 1000 X-ray plates. In the majority it was impossible to determine where the lesion first appeared, but in 160 cases the roentgen signs were quite clear. Of these they found that in 107 the earliest lesions appeared in the infraclavicular region, while in 60 it was confined to the lung above the clavicle. They found that 31.7 of the patients with apical lesions survived 10 or more years after the lesions made their first appearance. Despite extensive involvement of apexes some of the patients felt fairly well for more than 20 years. But not so in the infraclavicular group, only 1.8 percent lived that long. The infraclavicular lesions produce costitutional symptoms of active and progressive phthisis; often leading to a fatal termination. Thorough and skilful physical examination often fails to discover these lesions

and they are only discovered by X-ray. These lesions seem to occur mainly in adolescents and young adults; nearly 90 percent occur in persons under 35 years of age. For this reason some authors have been inclined to view these lesions as due to exogenous reinfections.

Tubercle bacilla are more often found in the sputum in patients with infraclavicular lesions. Patients with apical lesions were just as apt to hemoptysis as those with lesions below the clavicle, though copious hemorrhages are more likely in the latter group.

In many early infraclavicular infiltrations the process is soon absorbed, even cavities which have formed quickly may disappear, but in the majority of cases the onset is more or less acute and the course in progressive. These cases when recognized in time are best suited and likely to be favorably influenced by artificial pneumothorax.

# BOOK REVIEWS

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THE CLIMACTERIC (THE CRITICAL AGE). By Gregorio Maranon, professor of pathology in the Madrid General Hospital, member of the Royal National Academy of Medicine. Translated by K. S. Stevens. Edited by Carey Culbertson, A.B., M.D., F.A.C.S., assistant Clinical Professor of Obstetrics and Gynecology, Rush Medical College of the University of Chicago, etc. Illustrated, cloth, 425 pages. Price \$6.50. C. V. Mosby Company, St. Louis.

The Climacteric is one of the problems, often a vexing problem, confronting the family physician. The author attempts in the work to connect various glandular and endocrine dysfunctions with the many phenomena observed during that critical time of life known as the climacteric. This book is interestingly written and is full of helpful ideas.

CONGRESS OF MILITARY MEDICINE. Report of the Fourth International Meeting of the Congress of Military Medicine and Pharmacy, Warsaw, Poland, May, June, 1927. By Commander Wm. Seaman, Bainbridge, M. C. F., U. S. Medical Reserves. Cloth, illustrated, 248 pages. The Collegiate Press. Geo. Banta Printing Company. Menasha, Wis.

Citing the fact that there has always been a bond of sympathy between the Polish and American people dating from the days of our Revolutionary Army, Surgeon General Ireland of the U.S. Army feels special gratification that the United States was represented by five official delegates at the meeting. The volume is a statement containing many abstracts of articles and addresses read at the meeting and will prove especially of interest to the Medical Reserve Officers of the United States Army and Navy.

PHYSICAL THERAPEUTIC TECHNIQUE. By Frank Butler Granger, M.D. Late Physician-InChief, Department of Physical Therapeutics, Boston City Hospital; Director of Physiotherapy, United States Army; Medical Counselor, United States Vererans Bureau; Member of Council on Physical Therapy, American Medical Association; Instructor of Physical Therapeutics, Harvard Medical School; Assistant Professor of Physical Therapy, Tufts Medical School. With a foreword by William D. McFee, M.D., Boston, Mass. Octavo volume of 417 pages with 135 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Cloth \$6.50 net.

Physical Therapeutic Technic has found a definite place in the practice of medicine, despite the fact that it has fallen and is further falling into the hands of incompetents and their "cults" who by lay advertising lead people to believe that the impossible may be accomplished. As the writer sees it, physical therapy is a proper adjunct to the intelligent treatment of many pathological conditions, but it should never be applied empirically and just for the sake of having something to do. Granger, in this work, approaches the problems of physical therapy in a scientific manner.

THE NEUROSES. By Israel S. Wechsler, M.D., Associate Professor of Clinical Neurology, Columbia University, New York City. Octavo of 330 pages. Philadelphia and London: W. B. Saunders Company, 1929. Cloth \$4.00 net.

The author believes the Neuroses constitute the most ill defined and least understood clinical entities in the whole domain of Medicine. His work is based upon the clinical experiences derived from contact with patients and the study of normal and abnormal psychology. The book should prove of interest to the general practitioner and interne interested in the neurotic patient.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, (one number each month). Volume 9, number 3. (New York Number—June 1929) 299 pages with 125 illustrations, Per Clinic year (February, 1929 to December, 1929.) Paper \$12.00; Cloth \$16.00. Philadelphia and London.

THE COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION FOR 1928, Volume XX. Edited by Mrs. M. H. Mellish, Richard M. Hewitt, M.D., and Mildred A. Felker, B.S. Octavo Volume of 1197 pages with 288 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Cloth, \$13.00 Net.

Annually the Mayo Clinic and the Mayo Foundation issue a volume of collected papers summarizing the experiences of the past year. Many of these papers of course have previously been published in various Medical Journals. The present volume considers 429 papers, eighty-one reprinted in entirety, forty-three abridged, seventy-two abstracted and 233 are mentioned only by reference.

"The Thyroid Problem" by Boothby; "Iodine and Thyroxin Content of the Thyroid Gland" by Kendall and Simonsen; "Function of the Thyroid Gland" by Plummer; "Iodine Treatment of Patient with Exophthalmic Goitre" by Sistrunk; "Operative Indication" by Pemberton; "Preoperative Treatment" by Haines; "Subtotal Thyroidectomy for Goiter" By Rankin; "Oxygen Treatment after Thyroidectomy" by Haines and Boothby, consti-

tute a collection of highly valuable information to those interested in Hyperthyroidism.

"Surgical Lesions of the Kidney" by Verne C. Hunt is extremely interesting as is "Stricture of the Ureter" by Braasch. "Tuberculosis of the Genital Tract" is contributed by Hermon Bumpus and G. J. Thompson.

"The Surgical Treatment of Malignant Tumors of the Bladder" by Verne C. Hunt. "Status of the Prostatic Punch" by Hermon C. Bumpus; "Suprapubic Prostatecomy: Its Hazards and Factors of Safety" by Verne C. Hunt.

There are many more valuable papers in this issue which space prohibits even mentioning, nevertheless to the practitioner they are of extreme worth and the volume should find a place in every physician's library.

# KANSAS CITY ANNUAL FALL CLINICAL CONFERENCE

In this issue of the Journal there appears a condensed program of the Kansas City Southwest Clinical Society's seventh annual clinical conference to be held at Kansas City, Missouri, October 7th to 11th inclusive. Seldom has there been such an array of distinguished guests on a program as is noted in this meeting and this seventh conference of this organization is expected to be the biggest and best it has ever had.

The Clinical Society was organized in 1922 for the purpose, as set forth in its Constitution, (1) "To promote, encourage and develop the educational advantages of the clinical material of Kansas City that they may be available throughout the year to visiting physicians," and (2) "To hold an annual clinical conference which will demonstate and emphasize the progress of medicine throughout the world for the benefit of physicians and surgeons of the Southwest." During these past seven years the Kansas City Southwest Clinical Society has enjoyed a most successful and enviable career and it can conscientiously boast of its great progress and growth.

A new feature of the meeting this year will be the Post Graduate Courses to be given daily. Special class rooms are being prepared and the instructors will be drawn from the distinguished guests and membership of the Society. Every visitor can receive a complete Post Graduate training in his particular specialty.

Two special sessions should be noted, namely that of the joint meeting with the Kansas City Eye, Ear, Nose and Throat Society on Tuesday evening with Dr. Finnoff of Denver, Dr. Jackson and Dr. McCrae of Philadelphia as the principal speakers; and that of Thursday evening, a joint meeting with the American Committee for the Control of Rheumatism. The subject of arthritis which is to be discussed by the committee at this meeting should be most interesting and instructive.

Plenty of entertainment has been provided, the Smoker on Tuesday evening, the Alumni Dinners on Wednesday evening, the Golf Dinner on Friday evening, in fact nothing has been neglected in trying to make the entire meeting the most profitable and instructive of any meeting held in the Southwest.

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FOR SALE — Late Model Dynelectron Diathermy machine.—Mrs. R. J. Nichols, 1021 West Okmulgee Ave., Muskogee, Oklahoma.

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# THE SURGICAL TREATMENT OF EXOPHTHALMIC GOITER\*

FRED W. RANKIN, M.D.
Division of Surgery,
The Mayo Clinic, Rochester, Minnesota.

No clinical entity is better known as regards symptoms, diagnosis, treatment and prognosis than exophthalmic goiter, despite the fact that its etiology continues to be in question. That it is a disease of the thyroid gland associated with an unknown stimulus which results in the production and delivery to the tissues of an abnormal thyroid secretion and, perhaps, at the same time, an excessive amount of normal thyroxine, is the hypothesis of H. S. Plummer. That the disease progresses usually by exacerbations and remissions, with an occasional tendency to cease spontaneously after running a course of a few months to many years in certain cases, is well known, and the standardization of phenomena which are associated with this state, namely exophthalmos, stare with or without exophthalmos, gastro-intestinal crisis, vomiting and diarrhea, a psychic state characterized by irritability and useless, purposeless motions, loss of weight, and increased metabolism, likewise is recog-

The hyperfunctioning adenomatous goiter presents those phenomena symptomatically which are the direct result of increased metabolism and may be reproduced by feeding quantities of desiccated thyroid or thyroid extract. The absence of adenomas in the hyperfunctioning gland, from a practical standpoint, is presumptive evidence of exophthalmic goiter. However, in about one case in five, adenomas are present in the gland in exophthalmic goiter, so their presence or absence is not absolute evidence of the type of hyperthyroidism under consideration. Bruits over the superior thyroid vessels are almost always present in well established exophthalmic

goiter but they must be differentiated from the sounds produced by lesions of the aortic valve, bruits due to arterial compression and to colloid adenomatous goiters seen in adolescent persons. Characteristic changes in finger nails and toe nails occurring in cases of exophthalmic goiter frequently are of diagnostic value. The nails are often partly and irregularly separated from the nail-bed, with occasional turning up of the outer edge. It is essential to differentiate exophthalmic goiter and hyperfunctioning adenomatous goiter because of the difference in pathologic features and in prognosis, as well as in the selection of time for resection. If we adhere dogmatically to the hypothesis that there are two products of thyroid secretion in exophthalmic goiter, it is essential to administer adequate amounts of iodine in the preoperative treatment, while the reverse is true in hyperfunctioning adenomas. Practical considerations, however, demand that we adhere not too rigidly to this dictum and it has been customary in The Mayo Clinic to use small doses of iodine as a differential determining factor in establishing a mooted diagnosis. The small amount used has no ill effect and lack of improvement in the presence of adenomas contraindicates its continued use. Further, in the differentiation of these two conditions, the element of time, with gradual progression in adenomatous goiter, and exacerbation and remission in exophthalmic goiter, are factors to be considered in the diagnosis. Diarrhea, vomiting and other evidences of a gastro-intestinal crisis 'are present in exophthalmic goiter and usually absent in adenomatous goiter. The visceral degenerative changes in adenomatous goiter which extend over long periods of time are of extreme importance from the prognostic standpoint, and frequently myocardial disturbances are the first evidence of accumulated products of hyperthyroidism. Differential diagnosis of toxic goiter, neurosis, neurasthenia, chronic nervous exnaustion, and so forth, frequently is difficult and always essential. Many cases of exophthalmic goi-

<sup>\*</sup>Read before the Oklahoma State Medical Association, Oklahoma City, May 29, 1929.

ter which are associated with neurosis, and border-line cases, present great difficulties of differentiation. Determination of the basal metabolic rate is of enormous assistance in solving this problem but frequently in neurotic patients several estimations are needed in order for them to relax sufficiently to permit a satisfactory estimation to be made. It is not uncommon in some of these cases to find a rate which varies greatly and demands successive trials over several days to establish a dependable figure. Response to iodine in this group produces the characteristic changes in the nervous symptoms, a drop in the basal metabolic rate, and an increase in the patient's weight.

The surgical treatment of exophthalmic goiter has been forwarded by Halsted, C. H. Mayo and Crile in this country, and particularly by Kocher, and de Quervain abroad. These surgeons have standardized operative maneuvers, but it remained for Plummer, following the research work of Kendall, Marine and others, to standardize the preoperative treatment by the adequate use of iodine with a resultant decrease in mortality and morbidity.

Baumann, in 1896, discovered iodine as a normal constituent of the thyroid gland, and later, with his co-workers, Oswald and Roos, demonstrated that (1) ingested iodine is stored in the thyroid glands of animals; (2) after the removal of iodine from the diet, compensatory hypertrophy from the thyroid gland occurs; (3) the iodine content of the thyroid gland is directly proportional to the amount of colloid and (4) in colloid goiter the percentage of iodine is relatively less than that in a normal thyroid gland.

In 1914, Kendall isolated thyroxine as a pure chemical compound. Its physiologic and chemical properties indicate that it is employed in the process of oxidation as a catalytic agent and also support the hypothesis that invroxine is active in all or nearly all of the cells of the body. The amount of thyroxine present in the tissues of the average adult man is 14 mg., and the thyroid gland delivers approximately 0.33 mg. to the tissues daily; however, this amount varies with the metabolic activity. That the production of thyroxine is the function of the thyroid gland is the most acceptable hypothesis of its activity, although, unquestionably, it has many other related functions and probably also many unknown ones.

The action of the compound solution of iodine (Lugol's solution) on the thyroid gland is quite characteristic from the standpoint of the gross and microscopic changes in the gland, as well as from the standpoint of abatement of clinical symptoms. Prior to its use as a preoperative, preparatory agent, active exophthalmic goiters were vascular, bloody, friable and difficult to remove in many instances, depending on the size of the gland, the length of time the process had been present, and the amount of undermining which the general resistance of the patient had undergone. Adequate systematic and continued iodinization prior to resection of the thyroid gland reduces this state to one closely approximating that of diffuse colloid goiter. The changes in the various elements of the gland are constant and characteristic. A study of the microscopic changes in the gland following resection, after iodinization, may be summarized consistently from the work of Sager, Rienhoff, and others, as follows: (1) increase in colloid material: (2) increase in the element of connective tissue of the gland; (3) decrease in vascularity; (4) increase in size and regularity of the acini; (5) decrease in the height of the epithelium; (6) decrease in the cytoplasmic bodies of the epithelial cells, and (7) decrease in mitosis and lymphocytic infiltration. Grossly, the iodinized thyroid gland at operation appears reddish, lobulated and meaty, in marked contradistinction to the active friable goiter of a decade ago that was so difficult to handle.

Plummer began to standardize preparation of these patients for operation in 1922, placing the patients with toxic goiters, as a group, under the management of clinician, surgeon and pathologist. The three essential factors for satisfactory management of these patients are iodine, rest, and a high calorie diet. As the patient with exophthalmic goiter appears for treatment at an earlier stage of the disease it is found less and less essential to adhere rigidly to hospitalization as a routine for a period of preliminary treatment. On the other hand, ambulatory treatment over a short period of time, under careful observation of clinician and surgeon, is proving satisfactory except in the small group of extremely toxic cases, or for those patients who are approaching or recovering from a hyperthyroid crisis. Obviously, these tremendously sick patients demand hospitalization and special attention. Compound solution of iodine is given up to the time of operation. Its administration consists of 10 minims by mouth three times daily in cases of moderate severity. This arbitrary dose varies with the severity of hyperthyroidism, and the patients who are approaching a crisis or who are in crisis may be given huge doses with eminently satisfactory results. In severely toxic cases, in which vomiting is present, proctoclysis may be the method of choice for the administration of iodine, although usually the drug may be given by mouth and retained after repeated endeavors.

Clinical evidences of improvement, such as lowered basal metabolic rate, decreased nervous phenomena, and increase in body weight and strength, indicate that the opportunity for undertaking resection is at hand. Treatment for a period of one week to ten days is sufficient in the average or moderately severe case to place the patient in a physiologic state compatible with surgical intervention. The striking response to this preliminary treatment is indicated by (1) huge reduction in operative mortality; (2) the practical abandonment of preliminary ligations and other graded procedures, and (3) absolute control of postoperative hyperthyroid crisis. The abandonment of preliminary ligations and graded maneuvers, such as lobectomy or injections of hot water, has decreased mortality and morbidity and has resulted in practically all operations of thyroidectomy being accomplished in one stage. Formerly a high percentage of these patients, probably more than a third, were operated on by graded surgical procedures, such as single or double ligations or lobectomy. The rule of the last decade prior to the use of Lugol's in the case of highly toxic exophthalmic goiter, was to do a preliminary ligation of the right superior thyroid pole and if this was not followed by a sharp reaction, to do a subtotal thyroidectomy seven days later. If, however, the reaction was marked, another ligation was done at the end of seven days and after a short period of hospitalization the patient was allowed to return home for a wait of three months before returning for further surgical procedures. This rest, wait and double ligation usually resulted in a gain of about 19 pounds in weight and a marked increase in general resistance. The thyroidectomy, however, was rendered more difficult technically, and the mortality remained much higher than the mortality of today, after preliminary treatment by

iodine. The only indications for operations in multiple stages which I now recognize are: (1) high risks which are the result of long-standing hyperthyroidism or general constitutional ailments; (2) some local cause, such as tracheal deformity or obstruction, and (3) some technical accident, such as hemorrhage, injury to a nerve, or sudden change in the patient's condition which has developed at operation and necessitated its abandonment, and which has lowered the threshold of surgical safety.

Control of postoperative hyperthyroidism is one of the most satisfactory accomplishments of Plummer's plan of iodinization. In 1927, not one of the eleven deaths in The Mayo Clinic from exophthalmic goiter was attributable to an acute, postoperative thyroid crisis, which formerly was a common occompaniment of thyroidectomy. High temperature, thready, rapid pulse, with some nausea and constitutional reaction occasionally are seen after operation, but they are of short duration, unaccompanied by any of the characteristic phenomena of postoperative hyperthyroidism, and at the end of twelve to twentyfour hours usually have disappeared and the normal type of postoperative convalescence has been established.

The steps of the operative procedure are well known to all surgeons and I shall not describe them in detail. Our preference at The Mayo Clinic has been subtotal thyroidectomy, removing portions of both lobes and the isthmus, and leaving an adequate amount of tissue around the posterolateral surfaces of the gland to avoid injury to the recurrent laryngeal nerve, and at the same time to preserve adequate function of the thyroid gland. The five important steps in thyroidectomy are: (1) avoidance of injury to the recurrent laryngeal nerve; (2) accurate and complete hemostasis; (3) removal of sufficient thyroid tissue to relieve the hyperthyroid state; preservation of the function of the parathyroid gland, and (5) a satisfactory cosmetic result. The satisfactory cosmetic incision is one straight across the neck as the patient lies with neck extended, from one anterior jugular vein to the other. The skin flap is raised without taking the platysma with it. The platysma and underlying muscles are separated longitudinally and retracted laterally to give exposure. I have not found it necessary, unless the thyroid gland is very large, to divide the prethyroid muscles in order to obtain adequate

exposure; yet, I have no quarrel with anyone who carries out this procedure as a routine, since it is impossible to tell, at the end of a week or two, whether or not the patient has had the muscle cut, unless one refers to the record. The sternothyroid muscle is divided as a single separate step and, as the gland is located through it the lobe is caught with the Lahey forceps and elevated and rotated mesially. The sternothyroid muscle is dissected free and the lateral surface of the gland is exposed, so that the lateral veins may be ligated separately. This permits elevation of the lobe on a finger, which may serve as a control for oozing during the subsequent steps of the lobectomy and, at the same time, may prevent injury to the recurrent larvngeal nerve. The lobe is removed from above downward, and from within outward; the dissection is kept above the trachea at all times. The superior thyroid vessels are caught with two clamps and the upper pole is severed. The suspensory ligament is now caught and divided, and the isthmus is divided between clamps, exposing the trachea. At the same time the inner anastomotic branches of the inferior thyroid vessels are exposed and ligated. The dissection is carried down to the lower pole and then forward, across the gland to its outer side, where the other branches of the inferior thyroid artery are secured. In removal of the right lobe, adequate glandular tissue is taken away, leaving a V-shaped segment. It is my practice to tie the larger vessels with free-hand ligatures and then to suture the surfaces together with a running suture from above downward. After this single lobectomy has been accomplished and hemostasis has been completed, I think it highly desirable that the patient be permitted to wake up and cough in order that the nervous function may be determined at this time of the operation. In this connection it might be emphasized that selection of a satisfactory and proper anesthetic is a most important duty of the surgeon. Although every goiter may and can be removed under local anesthesia without pain to the patient, it is my conviction that a great deal of fear and anxiety, which is a common accompaniment of all surgical procedures, is avoided by the employment of small but adequate amounts of gas or ethylene anesthesia. This tides the patient over the difficult parts of the operation, and is, I believe, highly desirable from the standpoint of both operator and patient. My own choice is ethylene anesthesia,

which I employ at the beginning of the operation, until the injection of the local anesthetic in the neck is accomplished. Then the anesthesia by inhalation is discontinued and by the time the patient is awake the flap has been raised, the gland mobilized, and the resection completed, so that it is possible to complete the ligation of the blood vessels without pain and without using more anesthesia by inhalation. The second lobe may be removed in a like manner, after infiltration of the lobe with procaine or the employment of another small amount of gas. The completion of the operation is always possible without additional anesthesia with gas and it can be done in comfort if the preliminary injection of the tissues of the neck has been properly accomplished.

I do not attempt to close the wound of thyroidectomy without drainage; closure without drainage frequently is a successful step, but I believe that the employment of a drain as a routine lateral to the median line of the neck, is more satisfactory, and in my cases I have found no reason to discontinue this practice. A small stab wound through the right, ribbon-like muscles, lateral to the median line of the neck, is used for the insertion of two strips of rubber tissue into the fossae from which the gland has been removed. This obviates adherence to the trachea of a scar which moves up and down on swallowing and which is a source of no little annoyance to any patient unfortunate enough to have it occur.

It is my custom to dismiss these patients from the hospital on about the fifth day after operation, with directions to remain in their hotels for two weeks until the wound is completely healed. On dismissal they are instructed to continue taking iodine in doses of 10 minims for a period of ninety days from the date of operation.

# ROENTGEN RAY TREATMENT OF EXOPHTHALMIC GOITER\*

DR. ARTHUR L. STOCKS MUSKOGEE, OKLAHOMA

My results in the treatment of goiter with X-ray have been so satisfactory that I am almost persuaded to join the ranks of the enthusiastic radiologists who claim the disease properly belongs to the medical

<sup>\*</sup>Read at the Meeting of Oklahoma State Medical Association, May 27th, 28th, and 29th, 1929.

section and is rarely, if ever, a surgical proposition.

This position, however, is, I think, as equally erroneous as the assumption of the surgeon, who, with a personal sense of professional intellectual superiority arrogantly contends that X-ray is of no value in any type of goiter, which conclusion he has arrived at because forsooth, he has tried it in one or two cases, probably colloids, and failed. The truth, no doubt lies midway between these two opinions.

It is, of course, essential to distinguish between the different types of goiter. The X-ray has no effect whatever on the colloid type which, by the way, is the only kind where iodine should be used as a curative measure. The non-toxic adenoma and the toxic adenoma, are probably best treated by surgical measures, however, in the series of cases treated in the Massachusetts General Hospital, four toxic adenoma cases refused surgical intervention and were treated by X-ray with satisfactory results. It is the more serious type of goiter (the exophthalmic) wherein the X-ray is most valuable as a therapeutic measure.

It is the general practitioner who sees these patients first and who must make the diagnosis and assume the responsibility of selecting for his patient a surgeon or a radiologist.

I propose to submit, so far as time assigned will permit, the claims of radiology in this disease.

We cannot deny that surgical treatment has been both remarkable and brilliant, and, because of this, X-ray therapy has been very slow in obtaining that recognition to which it is entitled.

During the past ten or fifteen years rather extensive studies have been made of Roentgen Ray therapy and while I shall not attempt a survey of all the literature, I do wish to call your attention to the work done in the Massachusetts General Hospital reported by Doctors G. W. Holmes and Edward P. Richardson.

This study was under the supervision of the surgeon, internist and radiologist, and was undertaken for the purpose of arriving at an unbiased conclusion as to the proper evaluation of irradiation in this disease.

The observations were made on 369 cases, checked with frequent basal metabolic tests indicative of the amount of intoxication.

The results obtained were such as to justify the continuation of this form of treatment, particularly in those cases characterized by rapid heart action, nervousness, exophthalmus, increased metabolic rate, loss of weight and weakness, in other words, typical exophthalmic goiter.

Dr. Kennon Dunham of Cincinnati, said: "My opinion is based on twenty-two consecutive years' use of this procedure. In my hands and in the hands of my associates, it has given results which are nothing short of marvelous. I consider X-ray therapy the treatment of choice."

Bertram J. Sanger, Department of Medicine, Columbia University, reports a careful study of fifty patients treated with X-ray. 82 percent became entirely well and remained so, 6 percent were improved, 8 percent were operated upon, and 4 percent were lost in the follow-up clinic. Dr. Edward L. Jenkins, Illinois Medical Journal, January, 1927, says, "The biological effects together with definite clinical evidence of amelioration justifies the employment of X-ray in Graves disease. In the one hundred cases treated only two returned for treatment after being discharged as cured.

These results, which generally agree with those reported from various sections of the country, certainly compare very favorably with those obtained by surgical methods. Judd, from the Mayo Clinic, in "American Surgery" 1920, reports on 100 cases in which operation was performed. The results showed 65.8 cured, 13.6 markedly improved, 5.6 slightly improved, and 15 percent of the patients dead from all causes. When you consider X-ray therapy has no mortality, it would seem obvious that it is the treatment of choice. It is true that the death rate in the best selected three or four surgical centers is low—1.77 percent, and yet for the individual concerned it is 100 percent. Manifestly, all cannot avail themselves of these expert centers and therefore must, if surgery is to be used, be placed in the care of the general surgeon and while statistics are not available, it is estimated the general mortality under these conditions is not less than 10 percent, and inasmuch as one of our leading hospitals in the East report 7.1 percent, it would seem the estimate of 10 percent throughout the entire country is fairly conservative.

This fact of a definite mortality and the further fact that some cases are inoperable,

and in others operation is refused, has lead internists more and more to the use of the X-ray.

Both procedures have the same object in view. The surgeon removes the gland, or portions of it, and thus does away with hyperfunction and here the surgeon must use good judgment, for if he removes too much, we have the case changed into a myxoedema which is, at least, no improvement, while if he removed too little, there is a regeneration of the pathological cells and the patients continue with their toxic symptoms. The well known biological effects of the rays on glandular tissue producing degenerative changes in the epithelial lining of the vesicle and also an associated fibrosis of the connective tissue, making it smaller and harder, together with its effects in causing contraction of capilaries and blood vessels by an obliterating endarteritis reduces the vascularity, all of which inhibits the excessive secretion and reduces the quantity of thyroxin thrown into the circulation.

Thus is established the normal function of the gland and restoration to health of the patient. Of course, we do not expect to restore a damaged heart by radiation, however, patients frequently delay accepting operation, which delay results in cardiac injury when they would readily have submitted to irradiation, which is a big factor in favor of X-ray treatment. It therefore is apparent that X-ray therapy has a rational basis and if all diseases responded to radiation as does exophthalmic goiter, the practice of radiology would be a delight.

The objections made against radiation are:

- A. Effect is not permanent. This, of course, time will answer in my own experience, one very bad case has remained well for seven years and the reports dating back ten to fourteen years do not substantiate this objection.
- B. The slowness of the results give chance for further damage to an already pathological heart. Unless rest can be secured this objection may be tenable, however, under these conditions the danger incident to so severe a surgical procedure may and should place these cases in the inoperable class.
- C. The operation, if found necessary,

is rendered more difficult following radiation. In this I have no experience. The dosage needed to bring about the end desired should not, and need not, be so large as to bring about such a condition. Facts are, patients who have had suitable radiation, rarely, if ever, come to operation, so it is difficult to collect any statistics on this point.

D. Danger or damage to the over lying skin followed by an atrophy and telangiectasis. In the early days of its use, this was not an uncommon sequal, however, with modern technic, in trained hands, this should not and does not follow; indeed it is not necessary to produce even an erythema of the skin to obtain an adequate dose to cure the patient.

So far as I am aware these are the only objections raised against the X-ray treatment of goiter and I submit to the good judgment of the internist they are not very weighty.

I shall not weary you with a detailed report of my cases. Suffice it to say, they were all referred by physicians in Muskogee and vicinity (one being the daughter of a physician) and were typical exophthalmic goiters with metabolic rate of 30 to 90 plus, pulse 120 to 155, loss of weight, tremors, extreme nervousness and exophthalmus. In a general way the pulse and metabolic rate subsides in ratio to the clinical improvement, but to this I had one exception. In three cases I was able to obtain rest, which is desirable; in one of my worst cases, this was not possible. The patient, however made a complete recovery. If the diagnosis is made early and prompt treatment instituted, rest is not so important a factor. As soon as the tide changes and the clinical symptoms improve I proceed cautiously with treatment and in all my cases I have discontinued treatment with a mental reservation that I had not gone far enough and yet, to date, I have not retreated a single case. The only untoward symptoms occurred in three cases. in that there was a temporary hoarseness, due probably to the neglect in adequately proctecting the larynx.

In conclusion permit me to epitomize the advantages of X-ray treatment.

- A. There is no mortality.
- B. Except in advanced cases, the pa-

- tient can continue his or her vocation while taking treatment.
- C. Cases of high metabolic rate and rapid pulse are poor surgical risks but are amenable to X-ray.
- D. With careful checking of pulse weight and metabolic rate the treatment or dose can be changed to meet the exegencies of the changing pathology.
- E. Patients submit to this form of treatment earlier than surgery and thus escape possible cardiac damage caused by delay.
- F. It is available when operation has failed. Twenty of Holmes' cases were postoperative.
- G. The Thymus, no doubt plays a part in many cases of exophthalmic goiter and is always included when radiation is employed. This escapes the surgeon, a fact which may contribute to surgical failure.
- H. In exophthalmic goiter, as in other diseases, (duodenal ulcer for instance) having a medical and surgical aspect, the medical should receive first consideration, if there is a reasonable hope of success.
- I. In the matter of economy to the patient, admiting the radiologist fee to be the same as the surgeon, there is considerable saving in hospital and nurse expense.
- J. Finally: In making a judgment between X-ray and surgery in the treatment of exophthalmic goiter, one must not assume that surgery is always a cure, in the most expert hands as in the Mayo Clinic there is a permanent cure in about 68 percent, and as X-ray treatment, to say the least, shows equally as good results, I submit that it is a conservative conclusion to say that all cases should have the benefit of X-ray therapy before resorting to surgery.

#### HEART FACTS

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Is the pathology present in this heart? Sooner or later this question will confront the clinician, be he surgeon, obstetrician,

or internist. The hope that this paper may be of some service at that time is the reason why it is presented for your consideration.

Our conceptions of diseases of the heart have changed markedly in the last few years on account of clinical observations based upon scientific studies of the circulatory system. The old school held that valvular diseases produced heart failure by additional load, and the internal stress thrown upon the heart muscle. The new school holds that this hypothesis is erroneous, and that loss of cardiac reserve and later heart failure is the result of myocardial changes and that when valvular lesions are present, they are only aids to the determination of the aetiology of the given case.

To substantiate these claims, they call attention to the fact that if the mitral or aortic valves of an animal be damaged deliberately the healthy heart muscle can cope with the additional load with little or no embarrassment. Right here it is safe to state that most of us, at some time or other have been surprised by the absence of symptoms presented by a patient with an undoubted valvular lesion. Osler reported that he had observed such a case for more than forty years. Many similar observations have been made by competent clinicians.

At this time I would like to present for your consideration the following classification of heart disease.

- (1) The congenital type, which will not be considered in this paper.
- (2) The infectious or rheumatic, a disease of youth, affecting primarily the mitral valve.
- (3) The luetic heart with aortic regurgitation which usually makes its appearance in the third decade of life.
- (4) The hypertensive heart associated with arterial hypertension appearing in the fourth or fifth decade, affecting the myocardium.
- (5) The degeneration or sclerotic type, —often called the senile heart—affecting the vascular or conductive systems of the myocardium.

It is to be noted that in the earlier decades of life valvular lesions predominate, while later in life the presence of valvular lesions is the exception, unless there be

calcification of the aorta and valves due to senile changes. Heart failure cannot occur unless the myocardium has been damaged at some time in the past. The fact that this damage was not recognized may be a reflection upon our diagnostic ability.

The chief reliable signs of heart disease are:

- (1) Definite enlargement of the heart.
- (2) A diastolyic murmur.
- (3) Persistant high blood pressure.
- (4) Abnormal cardiac rate.
- (5) Irregular rhythm induced or persisting after exercise.
- (6) Electrographic changes.

With the exception of the electrocardiographic changes, these signs can be noted with a minimum equipment.

Much is said of the value of the electrocardiograph. In many cases its use does not give us the information desired, conversely in many cases it gives aid in diagnosis and treatment obtainable by no other means. It often calls attention to degenerative changes which have taken place in the myocardium up to that time wholly unsuspected. For this reason it is of value to the surgeon in his preoperative studies of patients, especially those who have passed the third decade of life. It is to be hoped that the time is not distant when the surgeon, if possible, will include this method as a part of his routine.

In the case of patient seen for the first time unless a careful study of (1) subjective symptoms (2) relation of the subjective symptoms to the physical or objective findings is made, no accurate evaluation of a heart condition can be made.

The question of heart strain, the result of violent exercise or the condition which is often termed athletic heart, naturally arises at this time. An answer to this guestion is given by Sir Thomas Lewis who states that "No physiological acts, no matter how heavy the burdens may be, ever exhausts the heart reserve. The reserve of the other bodily structures will fail before the heart is pushed to its limits of endurance." If there is obtained a history in which strain is admitted as a probable or primary cause, the chief part which this effort plays is clear, namely it has brought a waning cardiac reserve or a dormant lesion to light.

Heart failure is a term which is used

to designate the inability of the heart to meet the demands or adapt itself to the needs of circulation. The symptoms are many and vary from the classical picture of which we are all familiar to those which if not correlated early may lead to disaster later.

The classical picture of heart failure comes under one of the following group:

- (1) Anginal or what is often termed the protective type.
- (2) Static often called congestive or oedematous or failure of function.
- (3) Disturbance of rate and rhythm.

The earlier stages of heart failure do not present clear cut pictures but a careful study will show that sensory or static signs are present or changes in rate and rhythm of the heart's action.

The early symptoms are generalized in character, vague and may not suggest heart failure. The earliest symptoms are those of fatigue. Fatigue which compels the individual to curtail his activities. This is especially noted in the legs. Parasthesias in the legs develops easily upon standing without motion and which disappears upon taking a few steps or sitting down.

Symptoms referable to the respiratory tract vary from orthopnoea, breathlessness upon exertion, to a sense of fullness in the chest, tickling in the throat, a nonproductive cough, or as some patients express it only a thick wind. Polypnoea unnoticed by the patient is quite common. All of these symptoms are aggravated by exercise and are lessened upon rest. In older people a winter cough is very suggestive. Disturbance of sleep, awakening about 1 A. M. with sensations varying from a vague discomfort in the chest to a typical asthmatic attack. Physical findings show signs of stasis in the lungs.

The G. I. Tract: Frequently gastro-intestinal symptoms are the only ones noted and treatment is instituted for gastric condition for a long time before the cardiac condition is recognized. The usual symptoms are:

- (1) Anorexia.
- (2) Slow digestion or indigestion.
- (3) Belching of gas and sense of fullness in the stomach.
- (4) Certain foods, especially fats, are poorly borne.
- (5) The tongue is often coated.

(6) Inability to endure tight bands of clothing or the belt so commonly worn.

The sensory disturbances of the abdomen are above the umbilicus. The epigastrium is sensative to pressure. In more advanced cases the liver is enlarged and tender, and the abdominal muscles resent deep palpation. Possibly all of these symptoms are not present but a careful history elicits that exercise more than food enhances these symptoms.

Attention has been called to the static type of heart failure or a failure of the function of the heart. The next type to be considered is the so called protective type where nature employs pain as a warning that the heart is being overtaxed. The severity of the pain may vary from a simple discomfort to real distress. It must be remembered that the pain is induced by exercise and relieved by rest. When pain is sub-sternal and radiates down the inner side of one or both arms it is called angina pectoris. The location of the pain varies. I recall one case of a patient, the removal of carious teeth and later all of his teeth, did not relieve the pain in his face. Study of this case revealed the pain was induced by exercise. Diagnosis: Sclerotic heart with anginal type of heart failure.

The well marked cases of angina present little difficulty of diagnosis but the possibility of coronary infarct must not be forgotten. Briefly, severe anginal pain not relieved by nitrates but requiring morphia, possibly in liberal doses, pain lasting some time, the patient frequently changing position or walking in hope of getting relief. points to infarct. If there be marked lowering of the blood pressure, irregular pulse, and inside of 48 hours slight fever and leucocytosis and possibly a friction rub, the diagnosis of angina should be made. In the patients of middle life, acute indigestion, in fact any abdominal crisis. the heart should be studied for possibility of an infarct before surgical intervention is undertaken.

Disturbances of rate and rhythm are important signs of myocardial disturbances. Any sudden change of rate or rhythm should be investigated at once. The response of the rate and rhythm to exercise reveals much. The failure of the rate to vary with exercise and rest is pathological. Pulse rate under 40 means complete heart block or a condition where the ventricles are beating and working independently of

the normal impulse arising in the sinus node. It is due to failure of the auriculoventricular bundle to function. The higher rate means auricular flutter. Exercise may suddenly double the rate in the heart block while in auricular flutter the condition may be changed from a 4:1 to a 3:1 or 2:1 block. While in auricular flutter as well as in fibrillation partial heart block exists, in former there is definite ratio of the rate of the auricular contractions to that of the ventricles which is absent in the latter.

In febrile cases a marked change in rate or rhythm demands immediate attention. In diphtheria it is generally block, in pneumonia fibrillation. A rapid heart without any apparent reason makes an examination for thyrotoxicosis advisable. Any irregular cardiac rate whose irregularities are increased by exercise, even though there are no subjective symptoms demands prophylatic treatment for heart failure. Any case of aortic or hypertension whose heart rate after a moderate amount of rest is still in the upper eighties or more demands the same treatment.

The type of heart failure together with the age of the patient often gives us a good idea of the heart lesion. The congestive type is generally seen in the rheumatic and hypertensive types of heart disease. In mitral disease auricular fibrillation is generally associated with static heart failure and prompt digitalization is imperative. The static type seen in hypertension is due to myocardial degeneration and the response to cardiac therapy is not prompt. On the other hand leutic aortic regurgitation often is associated with a type of angina due to aortitis. These patients generally die before static heart failure is marked.

Angina and not static is the type of heart failure usually seen in the sclerotic type of heart disease. Thus it can be seen that the correlation of the subjective symptoms and the physical findings often give us a ready approach to the pathology before us.

This is an age of prophylatic medicine. It is the duty of the physician, once he has made the diagnosis of a heart lesion, to educate the patient to the realization of the importance of conserving his cardiac reserve and means of doing same. The treatment of heart disease is not by cardiac drugs. The first thing is to conserve the cardiac reserve. Later, if heart failure develops, treat the type of heart failure. In

auricular fibrillation with congestive heart failure, unless the ventricle is damaged resting the ventricle by producing partial heart block gives striking results.

The importance of the early recognition of heart failure cannot be underestimated. This is just as true as the early recognition of cancer, T. B. or syphilis or an acute surgical condition. One or more of these symptoms occur in all cases of failing heart, no matter what the academic diagnosis may be.

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# EARLY SYMPTOMATOLOGY OF CARDIAC DECOMPENSATION

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The problem of heart disease has assumed widespread economic and social importance due to the knowledge gained in the last few years by periodic health examinations, from a careful examination of industrial workers, and from the large number of damaged hearts found in school children.

With this information available, greater progress may be expected in the future relative to cardiac conservation, providing physicians assume their responsibility toward their patient by thorough examinations, which they undoubtedly will in the light of the high ideals of the profession.

Cardiac failure, according to Sir John Broadbent, is the inability of the heart to discharge efficiently its function of circulating the blood, and the essential cause of heart failure is some damage to the heart muscle which impairs its efficiency as the propelling and regulating mechanism of the circulation.

The earliest manifestations of cardiac failure should be most accurately obtained, for they are the first and most important symptoms and signs of cardiac failure. The physical findings in early cardiac embarrassment may be, and usually are, slight or even negative, but a careful inquiry may elicit subjective symptoms of value, such as, breathlessness, indefinite sensations of oppression in the cardiac area, mild distress in the epigastrium, definite limitations as to physical exertion, cough, suggestive of bronchitis, but of course, due to pulmonary congestion.

As you have readily noticed, patients

rarely complain in the same manner. One of the earliest symptoms in myocardial weakness is breathlessness upon exertion. This is the most reliable and generally satisfactory evidence of cardiac failure. In order to determine whether breathlessness on exertion is due to cardiac disease or not, it must be compared with the patient's previous powers of exertion without production of respiratory distress. The greater the damage to the heart muscle, the more readily will breathlessness be induced.

Another eary manifestation of cardiac embarrassment is precordial pain or distress which produces a feeling of anxiety in the patient. Pain due to myocardial change is considered as an expression of the exhaustion of the heart muscle, and the nature and extent of that impairment is determined to some degree by the severity of the pain. The pain occurs characteristically in paroxysms which are induced by effort or emotional stress. It is located in the upper sternal region, or upper left chest, and may radiate over the whole precordium, to the left shoulder, arm or hand, and to the left angle of the jaw.

Exhaustion and a tendency to become easily fatigued are frequent early symptoms. They occur especially toward the end of the day.

Edema is not commonly observed by the patient in the early stages of heart failure, because if it is present it is usually so slight as to escape attention readily. It is characteristically of the dependent type and is usually manifest toward evening as puffiness of the legs above the shoe tops. It shifts during recumbency so that it is absent from the legs in the morning. Complaint of rapid beating of the heart, or palpitation, is made occasionally.

Digestion is usually impaired, the appetite is poor and there is gaseous distension of the stomach and bowels, usually with constipation; an indefinite sensation in the right hypochondrium. These symptoms may not be attributed to pathology of the digestive organs per se; but it may be a cardio-vascular disturbance. Tenderness in the epigastrium is often present, but it is likely to be due to a congested liver. secondary to a cardiac condition, rather than to any pathology in the stomach. Examination will also likely reveal some moisture at the base of the right lung, which cannot be explained except by a beginning myocardial weakness.

It is essential to take the patient with early decompensation into our confidence and explain the necessity of preserving his physical well-being—he must learn to live within his physical means.

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#### BUNDLE BRANCH BLOCK

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It is an established fact that blocks of the branches of the bundle of His are a more frequent condition today than ever before. This is not a result of an increase of the condition itself but is due to the fact that the condition is diagnosed more frequently. With the advent of the electrocardiograph and the association of these findings with clinical manifestations which heretofore had been unexplained we can readily see and appreciate its increase.

A routine electrocardiogram on patients complaining of heart trouble has brought the condition into the lime-light more frequently.

Let us look rather briefly at the anatomy of the heart in so far as the heart beat and conduction system are concerned. The pacemaker—the sinus node—is situated at the sulcus terminalis near the junction of the superior vena cava with the right auricle. It is here that the impulse for cardiac contractions, as you know, originates. This impulse spreads over the auricle causing it to contract and reaches the auriculo-ventricular node (node of Tawara) which is situated in the posterior border of the inter-auricular septum. It is in this node that we find the beginning of the bundle of His. The bundle runs almost horizontally forward to the left and then downward. It crosses the auriculo-ventricular groove and hence establishes a connection between the auricles and the ventricles. At this point it divides into the right and left branches.

The left division of the bundle of His enters the cavity of the left ventricle near the anterior margin of the intra-ventricular septum underneath the junction of the right anterior and posterior cusps of the aortic valve. The right branch enters the cavity of the right ventricle slightly in front of the anterior attachment of the septal segment of the tricuspid valve.

Within the ventricles the branches divide into fine aborizations which completely encircle them—the Purkinje system.

All these fibers are located in the subendo-cardium, hence any damage to the same may affect the conduction system. Thus you can readily realize how frequent may occur aborization blocks. With these we are not concerned but rather with the complete block of either the right or left branches.

A bundle branch block, as previously stated, is not as rare as one might suppose, and in recent years it is beginning to fill medical literature, and unless one is acutely trained in the diagnosis of cardiac conditions, or invokes the aid of instrumental methods it will continue to be undiagnosed.

The etiology of this condition cannot be placed at the door of any one disease. Syphilis, in the form of gumma, is perhaps responsible for a great many cases. New growths of various kinds may destroy the branches.

Acute infection at times produces a branch block.

Sclerotic changes are perhaps the greatest offenders. These changes may be secondary to a slow, generalized arteriosclerotic vascular disease, or they may follow a coronary thrombosis which recovers.

In the beginning I should say that lesions of the left branch are rare. This seems to be generally borne out in all clinics and can perhaps be explained on an anatomic basis—namely; the right branch courses quite a long way before it begins to divide—hence the greater ease with which it may be destroyed by a single lesion, while the left branch begins to divide a very short distance from its origin, hence the difficulty with which it can be destroyed by a single lesion.

The condition may or may not be diagnosed clinically and it may or may not

be even suspected. This is the value of the electrocardiograph in these disorders, because from the electrocardiogram it can be absolutely diagnosed, but just a word of warning in reference to the electrocardiograph. The individual who uses the instrument alone to diagnose cardiac conditions is doomed to failure. Remember it should only be used as an aid. It is impossible to separate it from the clinical side entirely because it will not tell you how a heart appears clinically—how it responds to exercise—how the tones are—which are all important in the diagnosis and treatment of cardiac disorders.

Let us look at the clinical side of the condition. It is possible to recognize it at the bedside, in many cases, in patients presenting a cardiac picture, by the following:

- 1. In the first place there may be a visible bifid apex thrust which suggests asynchronous ventricular activity.
- 2. In the second place this bifid apex thrust may be palpable.
- 3. In the third place the heart sounds are feeble, sometimes practically inaudible, with a sound and an asynchronous murmur accompanying the two elements of the systolic thrust.

In many cases a reduplication of the second sound may be observed but not constantly.

The electrocardiogram gives rather a characteristic picture in bundle branch block. According to Hart, Herrick, Smith and others the following criteria may be used in diagnosing this condition:

- 1. The Q. R. S. complex exceeds .1 second.
- 2. The Q. R. S. complex shows considerable amplitude.
- 3. The Q. R. S. complex is notched in the leads of considerable amplitude.
- 4. The T wave is large and opposite in direction to the main deflection of the Q. R. S. complex.

There is still some controversy among cardiologists as to the difference between the tracings in a right and a left bundle branch block, but the most common interpretation seems to be that in blocks of the right branch, the main defection of the Q. R. S. complex is directed up in lead I and down in lead III, that is, the tracing is written by the left ventricle while in lesions of the left branch the opposite holds.

I would like to call your attention to three cases, the first a man, age 57 years, who two months before admission to the King's Daughters Hospital was seized with a severe pain under the sternum; the pain was not relieved by nitrates and morphine was required. The pain was accompanied by severe dyspnoea, which condition has existed since that time—improving at times—to grow worse at others.

On physical examination the heart was enlarged, the sounds were somewhat distant tending to approximate each other in quality. There appeared to be a somewhat split soft systolic murmur at the apex, suggesting a rather prolonged systole.

There were rales at the bases of both lungs and some engorgement of the liver.

Electrocardiogram showed a complete block of the right branch of the bundle of His.

He was digitalized, improved, and discharged to die suddenly three months later.

This man at the onset suffered a coronary thrombosis which destroyed the right bundle branch, giving us a characteristic tracing.

The second case a man, age 64, came to the hospital in November, 1928, complaining of pain over his heart on exertion, accompanied by shortness of breath.

On physical examination the heart was slightly enlarged downward and to the left. There was present a slight visible bifid apex thrust. On auscultation there was a soft systolic sound with an asynchronous systolic murmur at the apex with also a reduplication of the second sound. His blood pressure was 200 systolic and 128 diastolic.

Electrocardiogram showed a complete right bundle branch block and confirmed a clinical diagnosis of the same.

This man was suffering from mild angina pectoris and the slow sclerotic changes had destroyed the right branch of the bundle of His.

He is still under observation but unable to carry on his occupation on account of his pain and shortness of breath.

The third case a woman, age 53, came to the hospital complaining of shortness of breath with an occasional pain in the region of her heart which radiated down into her left arm.

On examination the heart was enlarged,

quite rapid, with sounds poor in character, approaching each other in quality. A peculiar murmur was present at the apex. Her blood pressure was 230 systolic and 140 diastolic. Her chest showed some evidence of congestion.

The electrocardiogram showed a block of the left branch of the bundle of His. which clinically was not suspected.

At present her condition is about the same after six months time.

Prognosis in these cases must be guarded. They are rarely seen in cases except those of advanced heart disease and a high mortality is to be expected.

T. Stewart Hart, in an analysis of twenty-five cases gave the following: Four had disappeared from sight and their outcome was unknown. Of the remaining twentyone cases, only three were living, one having been under observation for four years, the other two for fourteen and ten months respectively. Eighteen were dead, a majority of them within six months after the condition was diagnosed. Two lived for one year and one for three and one half years. This is about the mortality percentage of most cardiologists. Paul D White, however, nas one case who has been under observation for eleven years.

In the treatment of bundle branch block nothing seems to be of much value. Even in those cases where a definite luetic infection is present anti-syphlitic treatment has little or no effect. Rest, measures to correct abnormal renal function, and in cases of decompensation, digitalis, seems to be our only dependable allies.

#### SUMMARY

- 1. The electrocardiograph is an excellent aid to the diagnosis of bundle branch blocks and as an aid in the prognosis of certain heart condtitions.
- 2. Lesions of the right branch are frequent.
  - 3. Lesions of the left branch are rare.
- 4. Three cases of bundle branch block are shown.
- 5. Bundle branch blocks are seen only in cases of advanced heart disease and a high mortality is to be expected.
- 6. The treatment of bundle branch lesions has met with little success.

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#### MENINGOCOCCIC MENINGITIS

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Section on Medicine

This paper presents an analysis of 163 cases of meningococcic meningitis treated at the Isolation Hospital, St. Louis, during the years 1916, 1917 and 1918, and 126 cases during 1926, 1927, and part of 1928. The comparison of these two three year periods is made in order to bring out certain changes in the method of treatment which have been brought about and to show the results obtained.

Persistent headache, nausea, vomiting, irregular temperature and pulse, pain in the back of the neck or along the vertebral column followed by stiffness of the neck and back, restlessness and irritability or occasionally stupor are the usual symptoms of meningitis. These symptoms are not limited to the epidemic form of the disease but may occur in meningitis of any type. Small reddened macules scattered over the trunk or extremities, sometimes described as "flea-bite" hemorrhages, and resembling the rose-spot of typhoid fever occur in some of the cases of meningococcic meningitis and are an aid in diagnosis.

When we see a patient with these symptoms, we make a skin test for sensitization to horse serum and do a lumbar puncture. The sensitization test is started at this time in order that it may be read after the lumbar puncture is finished. If on puncture, the spinal fluid appears turbid, milky or purulent and a sufficient amount of fluid has been allowed to escape slowly to lessen the intracranial pressure, anti-meningococcic serum is administered intraspinally without removing the lumbar puncture needle. This saves the patient another lumbar puncture if, after the fluid is examined in the laboratory, it proves to be meningococcic in type, and probably doesn't harm him if it should be any other type of meningitis. As soon as the intraspinal injection is completed, serum is given intravenously if the skin sensitization test is negative. Serum is given in all cases of turbid, milky, or purulent spinal fluid, for the reason that there is no way of differentiating types of purulent meningitis on the appearance of the freshly removed fluid.

If after laboratory examination the case is presumed or proved to be meningococcic meningitis, it is our practice to administer serum intravenously and intraspinally at twelve hour intervals for three or four doses, after which the interval is lengthened to 18 or 24 hours. Rarely do we give more than three injections into the vein.

If during the removal of spinal fluid the patient complains suddenly of headache, or, if unconscious, he screams as if in pain, the flow is stopped for a few seconds and fluid again allowed to come out slowly until the headache recurs or until the pressure has been relieved. Twenty to fifty ccs. is the usual amount of spinal fluid removed.

The average dose of serum for a child is from 15 to 20 ccs, and for an adult from 20 to 30 ccs given under gravity pressure only. The intravenous dose we used was 15 cc for a child and 30 cc for an adult.

In general, the quantity of serum given at one time intraspinally is less than the amount of spinal fluid removed for three reasons:

First, to relieve intracranial pressure; Second, to allow for freer circulation of the serum intraspinally; and

Third, to leave room for the increased production of spinal fluid which will follow as a result of the disease itself, and from the irritant properties of the horse serum.

At successive punctures serum of different biological houses is used, since it is possible that one serum may contain antibodies for a particular strain of mening-ococcus which is absent in another serum. The administration of serum is continued until the spinal fluid is organism free and until the patient is clinically much improv-

ed, or until he has had a total of six or eight intraspinal injections.

It occasionally happens after repeated lumbar punctures that little or no spinal fluid is obtained, though it is evident that the puncture is properly done. This is due to blockage higher up in the canal, and justifies going in at a higher level. A puncture at the next or second higher level will many times give fluid, but if this fails we resort to puncture of the Cisterna Magna entering below the base of the skull. The technique of the puncture of the Cisterna Magna is as follows, quoting from Ayer's' original article:

"Place the patient on his side as for lumbar puncture, maintaining the alinement of the vertebral column and flex the neck moderately. The thumb of the left hand is placed on the spine of the axis and the needle inserted in midline just above the thumb. The needle may be rapidly pushed through the skin but should then be cautiously and carefully forced upward and forward in line with the external auditory meatus and glabella until the dura is pierced. If the dura is entered at this angle there is usually a distance of 2.5 to 3.0 cm between the dura and medulla. It is good practice to aim a little higher than the external auditory meatus and if the needle strikes the occiput to depress just enough to pass the dura at its uppermost attachment to foramen magnum. At its entrance the same sudden 'give' is felt as in lumbar puncture."

Just as the Cisterna puncture has been a decided help in the treatment of the acute stage of the disease, so also has lumbar and Cisterna drainage during the convalescent stage. During convalescence patients not infrequently develop within two or three days of the last injection of serum, symptoms of increased intracranial pressure as shown by headache, vomiting, occasionally fever and irritability. Lumbar puncture in these patients gives waterclear fluid under increased pressure.

Whenever a patient presumably convalescing has headache, nausea or vomiting, sudden elevation of temperature and stiffness of the neck, with increased white blood cell count, it is more likely due to a relapse than merely to an increased quantity of fluid. Should the fluid appear turbid on puncture at this time, antimening-ococcic serum must be given intraspinally as before, but *NOT* intravenously because of the danger of an anaphylactic reaction.

There were five cases with distinct relapses in our series. Each case again had a turbid spinal fluid after it once had been clear and there was a reappearance of meningococci in the spinal fluid. Four of these patients eventually recovered after having one or two relapses each.

In addition to the relapses which occasionally occur, there are sometimes certain permanent residual injuries in an individual recovering from this disease. The most frequent residual finding in our cases was deafness. Deafness occurred 7 times bilaterally and once unilaterally. There were three ocular muscle paralyses; one optic atrophy in an infant; one hemiplegia, one atrophy of the deltoid muscle.

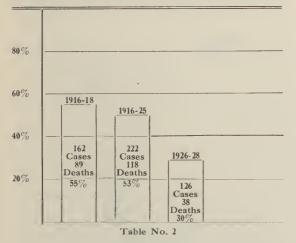
Of the 88 patients recovering, 14 showed the residual symptoms enumerated, a total of fourteen percent.

In comparing the results obtained in the two series of cases, we find

	1916-18	1926-28
Average number of lumbar punctures in patients recovering	5.6	5 5
Number of Ventricular punctures	17	4
Number of cisterna punctures	None	102
Average amount of serum in spine	111 cc	116 cc
Average amount of serum in vein	0	52 cc
Number of drainages	46	121
Total number of cases	162	126
Mortality	55%	30%

Table No. 1

#### TABLE SHOWING GROSS MORTALITY

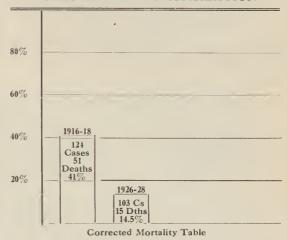


1916-17-18, 162 cases, 89 deaths, mortality 55% 1926-27-28, 126 cases, 38 deaths, mortality 30%

We see then a lowering of the general mortality rate in the two groups from 55 percent to 30 percent. A more striking re-

duction in mortality occurs, however, when we consider the patients surviving the

#### MORTALITY OF PATIENTS LIVING 48 HOURS AFTER HOSPITALIZATION



first 48 hours after admission. Of the 89 deaths in the first group, 38 occurred within the first 48 hours after hospitalization, and 51 occurred later. Of the 59 deaths in the second group, 34 died within 48 hours after admission to the hospital, and 25 died after that interval. In the first group this mortality is 41 percent and in the second group 15 percent. We believe that this reduction in mortality is due to the more intensive treatment received in the first 48 hours after hospitalization. Undoubtedly there has been gradual improvement in the serum during the ten years but the combined mortality rate from 1916 to 1926 inclusive is in excess of 50 percent, and the abrupt drop to 30 percent came in 1927 coincident with the more intensive treatment.

The average amount of serum given intraspinally in the two groups is almost identical; 111 ccs and 116 ccs respectively. The second group received in addition to the intraspinal serum an average of 52 ccs of serum intravenously and in this group serum was administered 71 times into the Cisterna Magna when the lumbar route was blocked.

#### CONCLUSIONS

- 1. The mortality rate in meningococcic meningitis at the Isolation Hospital, St. Louis, has been reduced.
- 2. The most striking reduction in mortality is in those patients surviving the first 48 hours after hospitalization.

3. The shorter interval between intraspinal injections of serum, the use of serum intravenously, and the introduction of serum into the Cisterna Magna when the lumbar route was blocked apparently accounts for the lowered mortality.

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#### A SLIDE TEST AND THE WASSERMANN

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The precipitation test for syphilis has become one of the recognized laboratory tests. Most laboratories are using the precipitation test either singly, or in connection with the complement fixation test. Thousands of tests have been compared in many different laboratories, nearly all of which indicate that the precipitation tests agree in a very high percent of the cases and, perhaps, agree with the clinical findings in a higher percent than does the complement fixation test. The microscopic precipitation test for syphilis has been used by Kahn, Priestly, Kline and others, for several years but valuable reports have recently been made which indicate that this test agrees with the conditions of the patient in even a higher percent than the Kolmer complement fixation test. Kline

has prepared an acetone insoluble antigen which has been found satisfactory and which seems to be more reliable than the Kahn antigen. Oglesby and Knapp have reported perfect agreement in one thousand tests in which the Kline antigen was used in both the macroscopic and microscopic tests. Just as the microscopic agglutination test for blood typing has superceded the macroscopic test, and the microscopic Widal test has superceded the macroscopic Widal, the microscopic precipitation test threatens to supercede the macroscopic test. There are, it seems to me, certain definite reasons for this, if the microscopic test proves as reliable as the macroscopic.

- 1. In children, a few drops of blood which may be taken from the tip of the finger or the lobe of the ear, is sufficient for this test. It seems agreed among laboratory workers that the cord blood for complement fixation tests is not entirely satisfactory, and that it is inadvisable to do routine fontanel punctures. As a result, the test is not done. It is certainly not a simple procedure to do a fontanel puncture and it is a procedure which should not be attempted except by an experienced physician. To obtain enough blood by other methods, is often very difficult, even in children up to three or four years of age.
- 2. In emergencies, it is often necessary to take blood from donors for transfusions, or some other similar emergency and get a so-called "quick" report. Both the macroscopic and microscopic precipitation tests have the advantage that a report can be



(1) FOUR PLUS PRECIPITATION TEST

furnished within one hour's time, easily. No such rapid complement fixation test would be reliable.

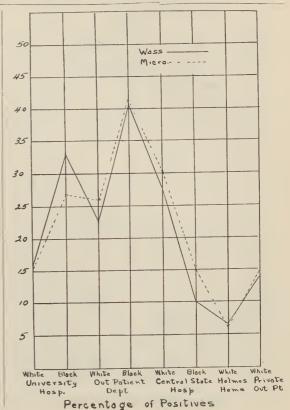
- 3. The microscopic test is much more clear-cut and easily read than is the macroscopic. It has been our experience, that occasionally, even experienced technicians disagree on the exact reading of the macroscopic test. This could hardly be possible
- 5. The microprecipitation test is simple and economical. The antigen (0.0075 cc); serum (0.05 cc); a 1 cc pipet graduated in 0.01 cc; a glass slide and a microscope fulfill the requirements for appartus. I believe a reading glass instead of a microscope would be satisfactory.
- 6. The complement fixation test, especially the ice box method, gives a certain



(2) NEGATIVE MICRO PRECIPITATION TEST

with the microscopic. I believe the accompanying photographs illustrate satisfactorily, this point.

4. The test is a good check on the complement fixation test, or what other method happens to be in use. Stokes has recently emphasized the importance of at least two tests being reported in each case by the following statement: "Refuse any longer, to accept a report based on a single type or procedure, i.e., complement fixation only, or precipitation only. For ordinary practice, as well as for the expert, it is not too much to require both, and three or four tests of radically different types are often helpful." In doubtful cases, or so-called pseudosyphilis, in which the responsibility of diagnosis is placed upon the laboratory, I believe all the reliable tests possible should be used to reenforce the laboratory decision. This applies to all those cases in which the laboratory report and the clinical findings disagree, or in which as happens not infrequently, separate laboratories disagree. Hinton has recently described the Hinton Glycerol Cholesterol Agglutination reaction which may prove to be another method useful in this respect.



number of anticomplementary reactions even on fresh specimens, and often repeatedly so. This means practically no report at all. In our experience, the microprecipitation test has been in agreement with the clinicians' findings in 89.85 percent of the known cases which were anticomplementary in the Kolmer test.

#### PROCEDURE

The microprecipitation test as described by Kline is as follows: "Into each ring 0.06 cc of the undiluted serum to be tested is delivered from a pipet. It is advisable to work with not more than twelve sera (three slides) at a time. After all the sera are pipetted, 1 drop of antigen dilution (0.015 cc) is allowed to fall into the serum in each ring. After all the antigen is pipetted, the small amount in each ring is evenly distributed by rapidly stirring the mixture with a tooth pick (a new tooth pick with a flat end a few millimeters in width is used for each test). After all the mixtures are complete, the slides, without further agitation, are placed below the humidor cover and allowed to remain at room temperature for ten minutes. At the expiration of this time, the first slide is removed, rocked, and rotated by hand for about sixty seconds (about 60 times) and read immediately. The readings are made

COMPA	RISON (	OF MICRO	PRECIPITA	ATION TES	TS AND W	ASSERMAN	NN TESTS	
		Positive Agreement	Negative Agreement			Wass. A.C. Micro Pos.		
UNIVER	RSITY H	OSPITAL-						
White	Male Female	$\begin{array}{c} 50 \\ 32 \end{array}$	312 191	15 4	$\begin{array}{c} 14 \\ 7 \end{array}$	$\frac{4}{2}$	12 9	
Tota	l	82	503	19	21	6	21	
		12.57%	77.14%	2.91%	3.22%	0.92%	3.22%	
		$\begin{array}{c} 585 \\ 89.72\% \end{array}$		$^{40}_{6.13\%}$		$\frac{27}{4.14\%}$		
Black	Male Female	14 13	30 34	0	2 4	2 1	1 0	
Tota		$27 \\ 26.73\%$	$64 \\ 63.36\%$	0	$\frac{6}{5.94\%}$	$\frac{3}{2.97\%}$	0.99%	
		01 09%	6 5.94%		3.96%			
OUT PA	TIENT	DEPART	MENT—					
White	Male Female	60 38	161 189	16 15	6 8	2	7	
Total		98 19.44%	$350 \\ 69.44\%$	$\begin{array}{c} 31 \\ 6.15\% \end{array}$	$\frac{14}{2.77\%}$	.59%	$\begin{array}{c} 8 \\ 1.58\% \end{array}$	
		44 88.8	18 38%	$\begin{array}{c} 45 \\ 8.92\% \end{array}$		$\begin{array}{c} 11 \\ 2.18\% \end{array}$		
Black	Male Female	48 70	56 109	9 6	6 7	0 2	0 8	
Tota	ıl	118 36.76%	165 51.40%	15 4.67%	$\frac{13}{4.04\%}$	$\frac{2}{.62\%}$	8 2.49%	
		28 88.	33 16%		$28 \\ 8.72\%$		$^{10}_{3.11\%}$	
CENTRA	AL STAT	E HOSPI	TAL—					
White	Male Female	52 11	97 49	10 4	6	9 2	8 4	
Tota	ıl -	63 $24.90%$	$\frac{146}{57.70\%}$	$\frac{14}{5.53\%}$	$\frac{7}{2.76\%}$	11 4.34%	$\begin{array}{c} 12 \\ 4.74\% \end{array}$	
		$209 \\ 82.60\%$		$\begin{array}{c} 21 \\ 8.30\% \end{array}$		23 9.09%		
Black	Male Female		12 5	1	0			
Tota	ıl	$\frac{2}{10\%}$	17 85%	1 5%	0	0	0	
		$^{19}_{95\%}$		$rac{1}{5\%}$		0		

		ŢT.	ABLE 2.			
COMPARISON	OF MICRO	PRECIPITA	ATION TES	TS AND W	ASSERMAN	NN TESTS
	Positive Agreement	Negative Agreement	Wass. Neg. Micro Pos.		Wass. A.C. Micro Pos.	Wass. A.C. Micro Neg.
HOLMES' HOM	1E—					
Mothers	$\begin{array}{c} 15 \\ 9.20\% \end{array}$	$147 \\ 90.79\%$				$^{1}_{.006\%}$
	162 99.99%				.006%	
Babies	2	90	1	2	1	14
	1.81%	81.81%	.90%	1.81%	.90%	12.72%
Total	$92 \\ 83.63\%$			$3 \\ 2\%$		15 .63%
OUTSIDE PRI	VATE PATI	ENTS-				
Males Females	9 1	$\begin{array}{c} 45 \\ 27 \end{array}$	1 3	3 0	$\frac{2}{1}$	3 0
Total	10 10.52%	72 75.79%	4.21%	3 3.15%	$\frac{3}{3.15\%}$	3 3.15%
	82 86.31%			7 6%	7.	6 31%

through the microscope (16 mm objective, 10 or 12.5 eyepiece) with the light cut down as in studying urinary sediments and recorded in terms of pluses according to the size of the clumps. Because of the importance of the test, it is strongly recommended that it be done in duplicates, different antigens being used."

We have modified the test only in that we use a 0.2 cc pipet calibrated in 0.01 and a glass slide 6" x 4" marked in 12 squares by melted wax. After mixing the antigen and serum by rotating, we place the slide on a rack in the waterbath with the lid down, to prevent evaporation.

#### RESULTS OF 2222 COMPARATIVE TESTS

Specimens represented patients from Central Oklahoma State Hospital for Insane; Eastern Oklahoma State Hospital for Insane; Holmes Home of Redeeming Love, as hospital for unfortunate girls; Out-patient Department, University Hospital; University Hospital; and a few private outside patients.

Of 2222 specimens collected from June 1, 1928, to March 1, 1929, the accompanying tables 1 and 2, give exact results, as recorded for the different departments. The chart represents in a graphic manner the agreement of the two tests expressed in percentage of positives.

Of 2222 tests, 2070 or 93.16 percent agreed. 96 were anticomplementary leaving 152 or 6.84 percent which disagreed in positive or negative results. Weak positives were included.

Of the 152 cases or 6.84 percent in which there was disagreement, 30 gave doubtful histories. 73 or 59.83 percent of the remaining 122 agreed in the clinical history and previous findings in the cases with Kolmer's test, and 49 or 40.15 percent agreed with the microprecipitation test.

#### CASE REPORTS

- 1. M. K., a white man, 31 years of age, with a clinical history of chronic nephritis and syphilis, had a chancre 9 years previous, was treated irregularly but fairly consistently for the past three years. Patient gave a history of having had a negative Wassermann August 6, 1928, and August 13, 1928, the Kolmer was anticomplementary. On the same dates the microprecipitation test was strongly positive.
- 2. H. G., a white male, 45 years of age with aortic insufficiency and a history of chancre 12 years previous, gave February 13, 1929, an anticomplementary Kolmer and a strongly positive microprecipitation. Again on February 15, 1929, a strongly positive Kolmer and a second strongly positive microprecipitation.
- 3. C. C., a white male, 20 years of age, who had a diagnosis of spastic paraplegia following an injury 4 years previous and a negative venereal history, gave four anticomplementary Kolmer reactions between September 3 and September 21, 1928. The microprecipitation tests on the same dates were all negative.
  - 4. A. J., a private patient, white male,

33 years of age, with a positive history, primary followed by secondaries, 3 years previous. Patient had had a negative Wassermann at Amarillo, a positive at Dallas, and in our laboratory, a weak positive Kolmer and a negative microprecipitation. The patient finally admitted irregular treatment during past two years.

5. Laura, a young pregnant girl from Holmes Home, gave, on June 5, 1928, a very weak positive Kolmer and negative microprecipitation. June 12, 1928, both tests were negative and on June 21, Kolmer negative and a 2 plus microprecipitation test. July 8, 1928, cord blood Kolmer was negative and microprecipitation was negative. Patient gave a negative history.

The above cases represent only a few of the many conflicting reports with which

we are confronted.

#### COMMENT

It is to me, a lamentable fact that the laboratory test for syphilis has fallen into the disrepute that it most certainly has earned. Kolmer has made much advancement in standardization of the complement fixation test, Kahn, Kline, and others have done much with the precipitation tests and yet, unfortunately, for the patient and the physician, there are too many conflicting reports. I believe our patients are entitled to all the tests available when there is a disagreement or a question as to diagnosis. A single test, especially by inexperienced serologists is unfair to the patient and the physician. When there is a disagreement I believe the laboratory should assume the responsibility of checking and rechecking the test in every known way.

#### CONCLUSION

- 1. The microprecipitation test as devised by Dr. Kline has, in our experience, compared favorably with the Kolmer complement fixation test for syphilis.
- 2. The microprecipitation test has certain advantages over the macroprecipitation or Kahn test.
- 3. At least two tests for syphilis should be used routinely and any disagreement carefully checked. Any single test is not satisfactory, especially so in the hands of an inexperienced serologist.

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#### SPONTANEOUS HEALING IN VESICO-UTER-INE FISTULA FOLLOWING LABOR

Each of ten cases reported by George Kirby Sims, Chicago (Journal A. M. A., March 10, 1928), followed labor. In three, forceps were applied; in two others an ampule of pituitary had been administered before delivery. The remaining six patients gave a history of prolonged labor in which the uterine contractions were unusually strong. Four of these had moderately contracted pelves. In each of the ten cases the fetal membranes had been ruptured several hours previous to the delivery. Sims concludes that vesico-uterine fistulas may be the sequelae to traumatism in labor by forceps manipulation, either by carelessness or through incompetence, especially in an attempt at rotation. The condition may be brought about through a lack of skill in doing a version. Vesico-uterine fistulas may follow an uninter-rupted, prolonged labor in which there have been unusually strong uterine contractions, thereby keeping the fetal head imposed on the rami pubis with the bladder interposed between the head and the pubic bones. This type of lesion in the majority of cases reported has not, according to the history, been the result of traumatism on the part of the accoucheur, though he may have been reluctant to report this feature of his work. Practically all these fistulas have occurred in cases in which there was a prolonged labor, a moderately contracted pelvis, or a combination of the two, with the bag of water rupturing several hours previous to the delivery. The lesion may be brought about following the administration of pituitary extract. Great care should be exercised in all labors in which it is necessary to intervene, especially in those in which the membranes have been ruptured for several hours. Vesico-urterine fistulas probably occur more frequently than is observed or reported, as a result, in many instances, of a small opening so situated as to make it a valvular type of lesion, thereby enhancing its opportunity for rapid union.

### SYSTOLIC BLOOD PRESSURES OF HEALTHY ADULTS IN RELATION TO BODY WEIGHT

A slight but statistically significant correlation between systolic blood pressure and the weight of a number of healthy persons has been found by Edward G. Huber, Atlanta, Ga. (Journal A. M. A., May 14, 1927), but on further analysis it appears probable that much of that correlation is due to the fact that underweight and hypotension are much more closely associated than overweight and hypertension. Forty-nine per cent of those who are more than 10 per cent underweight have subnormal blood pressures; only 18 per cent of those overweight have hypernormal pressures. Classifying blood pressures into two classes, those over 140 and those under 110, it is shown that 22 per cent of the former are underweight and 14 per cent overweight. Those with hypotension are 53 per cent underweight and 6 per cent overweight.

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#### EDITORIAL

## A MESSAGE TO COUNTY SOCIETY OFFICERS

The rather brief and not too uncomfortable Oklahoma summer has passed and there now lies before the Oklahoma profession many months of temperate and cool weather, which are those best adapted for study and work.

The success and achievements of the County Medical Society depend largely upon the executive ability and persistent efforts of a good president and secretary. These officers throughout the State should now make it their duty to re-convene their various County Societies and lay out their

work which would be best so arranged as to cover the months until hot weather again arrives. These meetings are made more attractive, as a rule, by occasionally having some able outsider from another county to either read a paper or address the meeting upon matters affecting the profession. In some counties a program committee has been found to function very well in that they have been able to secure the maximum of production from the members.

A phase which may not have occurred to many localities and which, so far as is known, has only been put in practice in Muskogee County, and which it is believed will prove of great benefit to those physicians participating, is that of affiliation with the Extension Department of the State University. In the Muskogee County case, 14 physicians secured nine weeks of dissection, surgical anatomy and some cadaveric surgery at a very nominal sum. This did not interfere to any degree with their work and was executed at night so there was very little interference with the normal routine of the individual. It is believed that where one or two localities can organize such classes and induce the aid and cooperation of the University Medical Department that very great and lasting benefit will result for those participating.

The object of this is to attempt to induce County Society Officers to stimulate their members to immediate activity along whatever medical lines they deem most beneficial.

#### INTRAVENOUS SODIUM AMYTAL AS AN ANESTHETIC

The barbiturates, in their many forms and compounds and under many different trade names, have long been used in various dosage as hypnotics and sedatives. For some time past many surgeons have used phenobarbital and later a refined product, sodium barbital, hypodermically, preliminary to the use of various forms of regional anesthesia, especially sacral and local. From June 1, 1929 to July 24, 1929, J. S. Lundy (1) and his associates have been using the barbiturates both in animal experimentation and intravenously for the induction of anesthesia in surgical cases. The observer is astonished at the brilliancy,

<sup>(1)</sup> Proceedings, Staff Meeting, Mayo Clinic, Volume 4, No. 30, Rochester, Minnesota. July 24, 1929.

promptness and efficiency of the results of this anesthetic. It was first noted that animals treated with sodium amytal or (sodium iso-amyl-ethyl barbiturate) intravenously were free from the convulsions often induced by the local anesthetic. During the time above noted Sistrunk and others have used the amytal intravenously in hundreds of cases. The writer observed this in many cases and is inclined to believe that sodium amytal, intravenously, may supplant a great deal of the routine and more dangerous general anesthesia now in use. No fatality and very few irritating or bad results have been noted.

The advantages are: (1) Quiet induction of anesthesia without unpleasantness; the patient unaware that an anesthetic is being induced. (1) Quiet respiration, facilitating intra-abdominal and other operations, and particularly amputation of the breast. (3) Postoperative sleep from twelve to seventy-two hours' duration with more or less loss of memory for events, especially painful events, occurring during the sleep. (4) Absence of postoperative nausea and vomiting.

The patients are almost unanimous in their preference for this anesthetic where they have had experience with other types.

The disadvantages are: Especially in surgical cases, those which follow a lowered respiration, long and profound sleep and of course these must be guarded against. There must be frequent change in position, administration as a rule is followed by some fall of blood pressure, a too rapid injection may induce a marked fall, so the drug is introduced at the rate of one and one-half to two grains per minute. The average dose being from about eleven to fifteen grains. Delirium may occur postoperatively but this is usually where large doses, twenty-two and one half to thirty grains had been administered. It was noted that probably about twenty-five percent of the patients had some degree of postoperative excitement. Due to prolonged and deep sleep this anesthesia is probably not suitable for tonsillectomies and other operations about the nose and throat, as the sleep may be so deep that an inspiration pneumonia could be induced. There was, however, no objections to its use in thyroidectomy.

The sponsors of this type of anesthesia are enthusiastic and suggest its many uses, not only as an anesthetic but as an

alternative to futile doses of morphine in long drawn out terminal cases. It is said that in some cases comparative ease was obtained over a time of several weeks. In surgical cases it has the advantage, that if more complete relaxation is needed, ethylene, ether or nitrous oxide may be supplemented.

As an anesthesia which will permit the patient from one-half to three days' comparative ease after an operation it must be considered a remarkable achievement.

#### Editorial Notes - Personal and General

DR. I. V. HARDY, Medford, attended The Mayo Clinics in September.

DR. E. A. AISENSTADT, Picher, was on active duty as Medical Reserve Officer at Ft. Sill in September.

DR. and MRS. H. T. BALLANTINE and family, Muskogee, have returned after a visit of several months to European points.

DR. C. N. TALLEY, Marlow, has returned home after having spent the past few weeks in New Orleans taking post graduate work.

DR. J. H. VEAZY, formerly of Madill, has moved to Sherman, Texas, where he has accepted a position on the staff of the Wilson N. Jones hospital.

DR. W. C. DARWIN, Woodward, has returned from a three months' stay at John Hopkins University where he took a special course in diagnosis and surgery.

DR. and Mrs. D. W. LeMASTER, Tulsa, arrived home the latter part of September from Europe, where Dr. LeMaster has been attending the Royal College in Vienna.

DR. J. H. SMITH, Seminole, has returned from a trip to London and Paris, where he combined a vacation with post graduate work in clinics of the two European cities.

DR. R. Q. ATCHLEY, Tulsa, visited Eastern clinics in August at John Hopkins and the clinic of Dr. Wayne Babcock of Philadelphia as well as those of New York City. Dr. Atchley did some special work in spinal anaesthesia.

STEPHENS COUNTY MEDICAL SOCIETY met in Duncan September 24, as the guests of Drs. Burnett, Overton and Hall. Drs. A. L. Blesh and A. M. Young, Oklahoma City, gave an address and read a paper, respectively, "Surgical Diagnosis" and "Veneral Diseases." The meeting was very well attended.

#### OTTAWA COUNTY MEDICAL NEWS

DR. A. M. (Andy) COOTER and wife spent the month of August in cool Colorado.

DR. G. P. McNAUGHTON, Miami, spent several days in Chicago the latter part of August, on business.

DR. J. T. RANSONE, Washington, D. C., has recently joined the Bureau of Mines' Clinic at Picher.

DR. L. W. TROUT, Afton, recently returned from a six weeks' vacation in his old home in Tennessee.

DR. J. B. HAMPTON, Commerce, attended the National Shot Gun Tournament at Dayton, Ohio, the middle of August.

DR. D. T. HOLLOWAY, of the Marine Hospital at New Orleans, joined the U S. Bureau of Mines' Clinic at Picher, August 1.

DR. WYLIE G. CHESNUT has severad his connection with the Miami Clinic, and is temporarily caring for the practice of Dr. J. B. Hampton at Commerce.

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DR. F. V. MERIWETHER, Chief of the U. S. Burean of Mines' Clinic, at Picher, spent six weeks on a tour of the U.S. Government T. B. hospitals in July and August.

DR. J. W. CRAIG, Miami, received his new commission as State Medical Director for the Modern Woodmen of America, for Oklahoma, August 22. The appointment is for four years.

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THE OTTAWA COUNTY MEDICAL ASSOCIATION resumed its meetings Wednesday, September 11, after the summer vacation. The September meeting was held at Camp Medical, on Cowskin River, on date stated.

#### SHAWNEE MEDICAL NEWS

DR. EDGAR E. RICE, Shawnee, is now at home after an extended tour over the Western coast states. His itinerary included the Portland meeting of the A. M. A.

DR. and MRS. EUGENE RICE, Shawnee, left August 4, for a nine months' European trip. Dr. Rice will spend the greater part of the time in Vienna doing post graduate work.

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MARRIED, July 17, 1929, Dr. F. Clinton Gallaher and Miss Maudie Bowles, both of Shawnee. After a two weeks' trip to Eastern and Southern points they are now at their home in Shawnee.

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DR. R. M. ANDERSON, Shawnee, has just returned from a European trip with the Interstate Post-Graduate Medical Association of North America during May, June and July. They attended clinics in England, Scotland, Norway, Sweden, Denmark, Germany and France. He reports a good time.

#### DOCTOR CHARLES ZENAS WILEY

Dr. C. Z. Wiley, one of the co-founders of Tulsa's first hospitals in 1905, and a pioneer physician of that city, died September 21, after an illness of several weeks; his death being unexpected by his family and friends.

Dr. Wiley was born in Cole county, Illinois, August 8, 1867. He married Miss Lavina Smith of Lakins, Kan., in 1887, and graduating from medicine in the University of Kansas in 1900. He practiced three years in Kansas City before coming to Tulsa, where he has lived until his death.

Besides his widow he leaves as immediate relatives a son, Dr. A. Ray Wiley and daughter, Mrs. Corrine Paul of Tulsa.

Dr. Wiley had many friends both in and out of the profession and was a prominent Mason, affiliated with the Tulsa lodge, Scottish Rite at Guthrie and the Shrine.

The Journal feels keen regret upon the passing of an honored member of the profession of Oklahoma.

#### DOCTOR CLAUDE T. HENDERSHOT

The following resolutions and obituary upon the death of Dr. Hendershot are published in his memory:

#### Claude Thomas Hendershot

We have met in this sanctuary this morning to convey our sympathy to the loved ones of the late Dr. Claude Thomas Hendershot, and express our appreciation of his life and service among us.

From April 13, 1874, until September 8, 1929, he was numbered among the congregation of the living as an active and contributing spirit for the welfare of his brother man.

Energetic and visioned as a youth he set out early to establish himself in professional life, and in 1897 his ambition was realized as the Louisville Medical College presented him with diploma and vested in him the right and responsibility to practice medicine. To this institution and his Medical Fraternity Phi Chi, he brought honor.

For seven years he ministered his profession among the people of Cannelton, Ind., moving then to Tulsa, where for 24 years his service and practice and respect has steadily and wonderfully increased.

In 1898, on Christmas Day, he was married to Beatrice Anderson. To this union came a little girl, Gladys by name, one day, to complete an exceedingly happy and beautiful home life. Shining out through Dr. Hendershot't busy professional life is the beautiful remembrance that his loved ones were uppermost in his thought and action. He left nothing to be desired in the realm of his home. His tender ministrations there are precious memories among his loved ones.

Upon moving to Tulsa, he entered into professional and civic life with the end in mind that he might minister as a worthy citizen. In church and state and profession he "grew in favor with God and his fellowmen."

He organized the First Tulsa County Medical Association of which organization he was president at the time of his death. Likewise was he prominent in the State medical circles and he was honored by the members in election to its highest office as president of the State Medical Association, which office he held at the time of his election to Glory. He was also secretary-treasurer of the St. John Hospital Medical Staff.

For three years he served as superintendent of the Sunday School of the First Methodist Episcopal Church of Tulsa, and for a number of years was teacher of the Ladies' Bible Class. All this he unwillingly gave up as the pressure of his profession grew upon him. Always has he felt a keen interest in the welfare of the church. It has been a dream of his for years that a beautiful church stand in Tulsa in the name of the Methodist Episcopal Society. It is fitting that such an edifice encloses this service to him to this day.

Besides hosts of friends everywhere there mourn this day most keenly his loving wife and daughter, Forest Dunlap her husband, and two precious little grandchildren, Billy and Mary Dunlap, Mrs. Carrie Best, sister, and E. D. Hendershot, brother, of Oklahoma City.

But he is gone—this summons to eternity has been answered. He gave his life to his fellowmen. He used himself up in service to humanity and truly may it be said of him in the words of the Master. "In as much as ye have done it unto the least of these my brethren, ye have done it unto me."

ROBERT M. LEHEW, Associate Pastor First M. E. Church.

The Tulsa County Medical Society, at its first convening since the summer vacation, pauses in its deliberations to record its sense of loss in the passing of a great friend of organized medicine, Dr. Claude T. Hendershot.

No person has shown greater zeal in promoting the interests of the medical profession than did Dr. Hendershot; this devotion was shown by his being president at the same time, of both the State Medical Association and the Tulsa County Medical Society.

In the passing of Dr. Hendershot, the cause of the advancement of medicine has lost an ardent advocate and every doctor has lost a staunch friend.

A page in the minute book of the society, bearing this testimonial of its esteem of Dr. Hendershot, is hereby set aside and a copy is ordered sent to the bereaved family.

Done, this the 23rd day of September,

In the sudden passing of Dr. Claude T. Hendershot, the members of the Okmulgee County Medical Society realize and wish to express the belief that Oklahoma has lost in this man one who was a leader in organized medicine, an earnest apostle of scientific medicine, a lover of humanity, and a courteous, considerate friend to all those who knew him.

We therefore wish to express our sympathy to his bereaved family and to join our sorrow with that of the Tulsa County Medical Society and the members of the Oklahoma State Society in the passing of our president and leader.

Let this expression be sent to the family of Dr. Hendershot, to the Tulsa County Medical Society, the Oklahoma Medical Association, and spread upon the minutes of the Okmulgee Medical Society.

OKMULGEE COUNTY
MEDICAL SOCIETY,
L. B. Torrance,
President.

M. B. Glismann, Secretary.

St. Johns Hospital, the sisters, the staff and the nurses are deeply mindful of the fact that individually and collectively they have suffered a very great loss in the untimely passing of Dr. C. T. Hendershot.

The staff of St. Johns Hospital particularly appreciated Dr. Hendershot's sterling qualities as exemplified in his routine work as secretary and adviser.

The wonderful attributes of the ready smile, the hearty handshake and the evident good fellowship will linger with his confreres—as will the memory of his unquestioned advancement of organized medicine.

Therefore, in heart-felt appreciation, we spread these sentiments on our records and transmit a copy of them to the bereaved family to whom we extend our deepest sympathy.

DR. J. FRED BOLTON, DR. HENRY S. BROWNE, DR. R. V. SMITH,

Resolution Committee.

The Ottawa County Medical Society at its regular autumn meeting at Camp Medical, near Turkey Ford, Oklahoma, on Wednesday afternoon, September 11th, 1929, adopted the following resolutions:

WHEREAS, the worthy president of our State Medical Association, Dr. C. T. Hendershot, of Tulsa, Oklahoma, has been called by death from the field of his labors—has paid to Mother Nature the debt we all owe, and whereas,

Ottawa County Medical Society, of Ottawa County, Oklahoma, feels the death of Dr. Hendershot as a personal loss, as he seemed almost one of us, as he had appeared on our programs at different times—the last time—May 8th, 1929, at our last full program meeting, and

WHEREAS, at that time he presented to us a very forceful paper on "Retrospection in Medicine," in which he set a high mark for his ideals in his chosen profession.

Now there, Be it resolved: That we extend our sympathy to the family and friends of Dr. Hendershot;

That we also extend our sympathy to the membership of the Oklahoma Medical Association, who have lost in the demise of Dr. Hendershot, a diligent and devoted leader;

That we realize in our bereavement the force of the words of the world's greatest orator: "That upon the tenderest heart the deepest shadows fall. All paths, whether filled with thorns or flowers, end here. Here success and failure are the same. The rag of wretchedness and the purple of power and all difference and distinction lose in the democracy of death. Character survives; goodness lives; love is immortal."

Be it further resolved that a copy of these resolutions be sent to the bereaved family, a copy sent to the Oklahoma State Medical Journal for publication, and a copy be spread on the records of our meeting of this day.

This the 11th day of September, 1929.

M. M. DEARMAN, R. H. HARPER, J. W. CRAIG,

Committee.

#### ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D. 717 North Robinson Street, Oklahoma City.

Studies in Rickets. 111. Prevention by Means of Ultraviolet Irradiation. T. K. Selkirk, J. V. Greenebaum and A. G. Mitchell. J. A. M. A., XCI, 2057, Dec. 29, 1928.

The cure of rickets by ultraviolet-ray irradiation as demonstrated by Hyldschinsky ten years ago has since been confirmed by hundreds of investigators. Our next step was to ascertain if irradiation could be used as a preventative of rickets; if so, the amount and intervals of treatment necessary.

Diagnosis was made by X-ray picture taken

of left wrist of a group of infants monthly until the age of eight months. These babies were divided into four groups for treatment as follows: (1) ultraviolet, (2) ultraviolet and cod-liver oil, (3) cod-liver oil and (4) neither ultraviolet nor cod-liver oil. Seventy-seven percent of the latter in colored and seventeen percent white babies developed rickets. Fifty-seven percent of cases diagnosed by X-ray showed rickets on clinical examination and diagnosis was made by X-ray before there was any clinical evidence. Fifty-one percent of group were female, forty-nine percent male; seventy-nine percent, colored, twenty-one percent white; seventy-nine percent breast fed. Babies born from December to April show slightly lower incidence of rickets than those born during remainder of year.

Group 1. Prevention in ninety-eight percent of cases to age of eight months with eleven minutes per month of ultraviolet ray.

Group 2. Same result as Group 1 with six minutes per month.

Group 3. Prevention in sixty-one percent. Record showed cod-liver oil given irregularly and in small doses. The average age when the irradiation was started was one and six-tenths months and continued for an average of six months' time.

Artificial Reconstruction of the Cotyloid Cavity in Congenital Dislocation of the Hip. Nove-Josserand. Lyon Chir. XXV, 353, May-June, 1928.

The author criticizes the ordinary procedures which are employed for reshaping the roof of the acetabulum, and for not sufficiently lowering this artificial cavity. He has proposed the following procedure, which consists of artificially reenforcing those structures which, normally, reconstruct the luxated hip after the reduction. He calls attention to the important role played by different parts in the process of the reconstruction of the hip after bloodless reduction. The cotyloid cavity of the child is not formed by bone but by cartilage, and at the age of seven years the bony structure is but a small, thin portion of the cavity; it is the fibro-cartilage which is the principal means of securing the solidity of the hip. After a reduction the stability is maintained at the first by the capsule, of which the superior portion is folded on itself and retracted. This retraction carries over the femoral head and the fibrocartilage, which is pressed upon by the exposed head and covers the surface of the newly formed cotyloid cavity. It exerts there a strong resistant action, which is the principal agent in maintaining the head in place. When the treatment is finished, the limb returns to its position easily and the child resumes walking. The bony cotyloid cavity is formed only much later, and is seen by the radiograph to develop after several months or even after several years. Often it remains incomplete without the function of the hip being interfered with, which proves the very important role which is given to the fibrocartilage in maintaining the stability of the hip.

But the fibrocartilage does not always return to its normal condition. Sometimes it remains adherent to the iliac bone and remains, therefore, exposed. In this, he thinks, lies the principal cause of the imperfect results. The object of these operations described by Nove-Josserand is to free the fibrocartilage, to lower it, and if need be to reenforce it by graft. In order to accomplish this, the hip is reduced and the limb held in flexion beyond a right angle. The region of the hip is

then exposed by Smith-Peterson incision. By this route the capsule is easily exposed. Then with a strong gouge the surface of the bone is reamed out at the level of the evident insertion of the capsule. This is detached above and below from the fibrocartilage, which covers the new cotyloid cavity as far as is possible to feel with the finger on the femoral head in the bottom of the wound. On retracting as strongly as possible the soft parts to the outside, a kind of deep sac of five or six centimeters in length is exposed, of which the internal wall is formed by the iliac bone which has been reamed out, and the external wall by the capsule and by the fibrocartilage. It is in this sac that the osteoperiosteal graft, previously taken from the tibia, is placed. Care must be taken to place this graft as horizontally as possible—this is to say, perpendicularly to the neck and to the projection of the bottom of the cavity. The wound is sutured and the hip is immobilized in abduction.

The operation is easy and brief. It does not expose the patient to shock, and immediate results are satisfactory. It remains, however, to see what may be the late results.

#### Approach of the Humerus by the Internal Route. A. Parcelier and A. Chenut. Rev. de Chir., XLVII, 454, 1928.

These authors report that the avenues of approach to the humerus described in the recent works of operative medicine are grouped into two, the antero-external and the posterior trans-tri-cipital routes. The first leads to the superior and middle third of the bone, and the second to the inferior third. They feel that these two routes of approach present a common inconvenience. In that of the middle and the inferior third of the bone, it is necessary to find eventually the radial nerve, which obstructs the operative field, to reflect and protect it; for the radial nerve, because of the numerous lateral branches which emerge at this level of the arm, is an organ relatively fixed, and its removal, even though carefully done, may be accompanied by a postoperative radial paralysis. They prefer, in order to reach the two inferior thirds of the humerus, the internal route. It would seem at first glance paradoxical to approach the humerous by the anterior portion, where there are the important groups of muscles and vessels, but on second glance it is noticed that the biceps is easily retracted, and with it the humeral artery and vein, by flexion of the forearm on the arm; that neither the median nor the cubital nerve branches at this level of the arm. They separate more and more as they leave the superior third of the arm. It is sufficient to recognize without retracting them.

The incision should be long, beginning at the axillary angle, immediately behind the inferior border of the pectoralis major, and following then the internal border of the biceps as far as the middle portion of the arm, where it then curves posteriorly to the epitrochlear, which it can easily reach. Having then reflected the superficial vessels and nerves, the incision is made to the biceps, this muscle being drawn to the outside and the mass of vessels and nerves freed at the level of the middle portion of the arm. This last is retracted to the outside, disclosing the intermuscular septum. Immediately behind this and throughout the length of the wound, the sheath of the tricepts is incised; the internal wall of the intermuscular septum, the humerus is reached. The bone can then be denuded behind and in front

along two inferior thirds. Below it is easy to free the humerous as far as the epiphysis. This incision is not suitable for the upper third of the bone. The deep humeral vein crosses transversely the humerus at this level. The incision constitutes, therefore, the way of choice to treat the osteosynthesis or fractures of the two inferior thirds of the shaft of the humerus.

#### Postural Defects, Correctable in School Physical Education Classes. William Arthur Clark. California and West. Med., XXVIII, 636, May, 1928.

When large groups of children and young adults are examined, it is found that an appreciable percentage are abnormal in one or more aspects of body mechanics. Since this is a handicap, potential or real, such conditions should receive adequate treatment. However, the tendency in school to expect every child to conform to one type, should be guarded against.

A "vicious circle" in posture may be represented as follows: (1) slump in skeleton; (2) interference with organs; (3) poor function; (4) malnutrition and poor aeration; (5) depressed muscle tone which causes (1) slump in skeleton, etc.

Many cases of round shoulders have their origin in a tilted pelvis. When the pelvis is tilted forward, as a result of poor muscle tone around the hips and lower trunk, the consequent lordosis must be compensated by an exaggerated forward curve in the upper dorsal region which gives the rounded effect to the shoulders.

In evolving from the quadruped to the biped stage, the human skeleton seems to have a weak point remaining in the sacro-iliac joint. Perhaps in the distant future, further evolution may eliminate this joint and a solid bony union will preclude the now frequent trouble in this region.

In round shoulders, the most serious handicap is ptosis of the heart and diaphragm which are to a certain extent "hung" from the root of the neck. In growing children with a tendency to this deformity, it is best to have the clothing held by a belt at the waist rather than hung from the shoulders by straps. The condition can easily be treated in corrective physical education classes by well trained physical education teachers. Active muscle development should be the goal rather than passive bracing of the shoulders by apparatus.

Scoliosis cases, if not too severe, may be treated individually at school, provided the physical education department is properly supervised. The time-worn ideas regarding etiology of this deformity do not seem adequate in explaining it. It is suggested, with some evidence for support, that the lateral deviation may come from habits of sleeping—e. g., on the same side with pillow under the head and shoulder. Certainly there is more time spent in sleeping than in writing at a desk or carrying books.

In the discussion of this paper, the point is raised whether any attempt should be made by physical education teachers to do such work as outlined above. In answer to this it may be said that the majority of the defects are minor in degree and would not justify regular trips to the orthopaedic surgeon. The whole problem presupposes adequate orthopaedic supervision to differentiate the cases.

#### EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

Polvogt, L. M., and Crow, S. J.: J. A. M. A., Orangisms in Cultures from Tonsils and Adenoids, 1929, xcii, 962.

The authors report investigations undertaken to determine the predominating organisms deep in the tonsilar crypts, to discover whether organisms recovered from patients with a general systemic disorder differ from those recovered from patients with only local symptoms, and to investigate the carrier state.

In tonsils and adenoids of 91 to 100 patients, the haemolytic streptococcus was the predominating organism and in those of 9 patients the staphylococcus predominated. The streptococcus predominated in children, but in adults the staphylococcus was more common.

The authors state that a culture made by swabbing the surface of the tonsils is a reliable index of the organism predominating in the crypts.

The Physiology of Vestibular Nystagmus, Ivy, A. C.: Arch. Otolaryngol., 1929, ix, 123....

As a result of stimulation of the non-acoustic labyrinth, compensatory movements of the eyes occur. These consist in a slow movement called "deviation" and a quick movement in the opposite direction called "nystagmus." The deviation of the eyes is due entirely to stimulation of the labyrinth. The nystagmus is probably due to a reflex occurring by way of the muscle centers of the eyes and initiated by the stimulation of kinesthetic sensory nerve endings in the muscle of the eyes. The cerebrum maintains an inhibitory control of the reflex.

The author accepts the theory of Maxwell that the cristae of the ampullae are stimulated by changes in tension of the utricular membrane caused by inertia effects in the larger bodies of fluid in the vestibule and utriculus. He states that in man and the dog fish there is a correlation between the type of nystagmus that results from rotation in the various visual planes.

The Diagnostic and Therapeutic Value of Iodized Oil in Chronic Purulent Otitis Media and Chronic Mastoiditis, Mandelbaum, M. J.: Laryngoscope, 1929, XXXIX, 156.

Since it was proved that iodized oil will penetrate all of the mastoid cells and that the iodine exerts a beneficial effect on the diseased deep structures, the author has used iodized oil with considerable success in more than twenty cases of chronic otitis associated with subacute and chronic mastoiditis of varying degree or acute exacerbations of chronic mastoiditis.

He emphasizes that in acute mastoiditis and in chronic cases with acute exacerbations definitely indicating operative interference, the use of the oil is not to be considered.

In several cases with recurrent attacks of mastoid pain and discharge after mastoidectomy, the iodized oil revealed unremoved mastoid cells and brought temporary cessation of the pain and discharge.

Tumors Benign and Malignant of the Tonsil and Peritonsillar Area, Dunn, L. S.: Laryngoscope, 1929, xxxix, 16.

Dunn states that primary malignancy of the tonsil and peritonsillar area is not as uncommon as it was formerly believed to be. An early diagnosis is important. A tonsillar or peritonsillar mass should never be punctured when symptoms of tonsillar or peritonsillar infection are absent, and biopsy should never be done in what are believed to be bordering cases. Biopsy specimens should be removed with the cautery instead of the cold knife. When the laryngologist is unable to make a diagnosis he should consult a surgical pathologist. When the diagnosis then remains doubtful, he should refer the patient to a roent-genologist.

Circumcorneal Transplantation of the Buccal Mucous Membrane as a Curative Measure in Diseases of the Eye, Denig, R.: Arch. Ophth., 1929, i, 351.

The author recommends circumcorneal transplantation of mucous membrane from the mouth as a curative measure in such diseases of the eye as trachomatous pannus, scrofulous pannus, torpid and dystrophic keratitis and herpes. It has been used with gratifying results also in burns due to ammonia, lime or acid. The beneficial effect seems to be due to improvement in the nutrition of the cornea.

The diseased conjunctiva is removed, the sclera thoroughly cleaned off, and the mucous flap from the mouth then sutured in place. Both eyes are bandaged for five days and the sutures are removed after from ten to twelve days. The flap may be removed later.

**TUBERCULOSIS** 

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Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

The Epidemiology and Control of Tuberculosis. Eugene L. Opie. American Review of Tuberculosis, (August) 1929.

About sixty years ago it was demonstrated that tuberculosis is a transmissible disease and a few years later the tubercle bacillus was discovered. Upon these discoveries are based almost all the measures we are now using for the control of the disease. Dissemination of tubercle bacilli has been retarded by various measures to promote various forms of cleanliness. Segregation of patients with positive sputum has diminished the spread. Dispensaries for tuberculosis has been an effective means of discovering many cases.

In an attempt to control tuberculosis, we must concern ourselves not only with its transmission from the sick to the well but with the existence of widespread, concealed infections of varying grades of intensity, which in many instances under unfavorable conditions will become manifest disease. One hundred thousand persons die from tuberculosis in this country every year and approximately one million suffer from the disease.

Knowledge of the occurrence of tuberculous infection in the community and of the conditions that retard or favor its spread is the basis of all effective efforts to control the disease. Knowledge concerning the distribution and spread of disease

is obtained by direct observation and by statistical methods. Every community, rural or urban, should know how many of its members have open tuberculosis and are scattering tubercle bacilli; how many have manifest disease but no tubercle bacilli in the sputum; and how many children and adults have grave latent infections that threaten active disease and are a potential source of transmission.

The Treatment of Tuberculous Pericarditis with Effusion by Injection of Air and Lipiodol into the Pericardial Sac. W. Ackermann. American Review of Tuberculosis, (August) 1929.

Report of a case: The Patient, 48 years of age. was treated at first by private physicians for pleurisy. The symptoms enumerated show that the patient was quite ill. First paracentesis of pericardium with removal of 300 cubic centimeters of cloudy serofibrinous fluid gave some relief. The fluid was strongly positive for tubercle bacilli. After the third paracentesis with removal of 450 cubic centimeters of fluid, 50 cubic centimeters of air was injected into the pericardial sac by an artificial-pneumothorax apparatus. For the next few days the temperature dropped to normal. In all, the pericardium was tapped 20 times, 17 of which were followed by the injection of air, and one of them by the injection of 10 cubic centimeters of lipiodol and then air. Patient felt so well that he was permitted to be up after the twelfth treatment.

The author's conclusions are:

- 1. The performance of pneumo-pericardium is without danger and discomfort.
- 2. The injection of air gives greater relief than does aspiration of the exudate alone.
- 3. The presence of air delays the reformation of exudate.
- 4. By holding apart the two layers of the pericardium, the friction rub and formation of adhesions are prevented.
- 5. On X-ray examination, the air in the pericardium permits one to see how completely the exudate has been evacuated.
- 6. The injection of lipiodol sets up an irritation with elevation of temperature, and this seems to have a great effect in reducing the vitality and number of tubercle bacilli. After four months, no tubercle bacilli could be found in the exudate.

Histological Studies on Healed Tuberculous Primary Lesions of the Lung. R. H. Jaffe and S. A. Levison. American Review Tuberculosis, (August) 1929.

The healing of the tuberculous primary lesion consists of three phases: (1) the formation of a fibrous and hyaline capsule, (2) the calcification of the center, and (3) the partial or complete replacement of the center and parts of the capsule by bone. The latter phase does not always occur.

Fifty primary lesions were selected for this study. The authors found that the average of individuals with boney primary lesions is forty-six years as compared to thirty-three of the group with nonosseous primary lesions. The earliest primary lesion containing bone was found in a man aged twenty-one years; the oldest without bone was observed in a man sixty-three years of age. The figures indicate that with advancing age the frequency of ossification of the primary lesions advances, although age is not the only determining factor.

The authors' conclusion is as follows: the ten-

dency of the tuberculous primary lesion of the lung to become replaced by bone is explained on the basis of an irritating action of the calcified center upon the specific capsule. This irritating action leads to an ingrowth of granulation tissue, which, bathed with tissue fluids oversaturated with calcium salts, undergoes osseous metaplasia which is characteristic of the primary lesion and is perhaps due to its peculiar histogenesis. It is seldom observed in the calcified and encapsulated tubercles of the regional lymph nodes and of the reinfections.

#### DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Buliding, Oklahoma City

The Hereditary Factor in Allergic Diseases with Special Reference to the General Health and Mental Activity of Allergic Patients. R. M. Balyeat, Am. J. M. Sc., 176:332, Sept., 1928.

It was found in this study that heredity apparently was the chief factor in determining the development of an allergic state, and to some extent governed the time in life when symptoms would appear. The greater the amount of exposure, the greater would be the patient's liability to allergy; the earlier the sensitivity developed, the greater would be the possibility of the patient becoming sensitized to more than one protein group. Patients may be sensitive to nitrogenous or non-nitrogenous substances which may also be found in breast milk and cow's milk. Children may be born specifically sensitive, but only the ability to become sensitive is transmitted, not the specific state. Eczema and migraine were found to be interchangeable with hay-fever and asthma, but an increased resistance to other infections was observed in these allergic persons.

Leprosy in the United States. Ralph Hopkins and Oswald E. Denney. J. A. M. A. 92:191, (Jan. 19) 1929.

In what is now the National Leprosarium a statistical study was made of 718 cases treated in the past thirty-four years. Some 500 of these paients were natives, though just what proportion of these had foreign born parents is not known. Males predominated over females in a proportion of more than 2 to 1, and there were twice as many whites as negroes. The social status of the patients represented a cross section of the normal populace. 40 percent of the cases were of the skin type, 11 percent of the nerve type and the remainder of the mixed variety. An astonishingly large number of the cases were closely related by blood. A few families were affected almost to complete extinction. The disease appeared to manifest itself at all ages about equally, though there was a slight increase at the age of puberty. In five of the cases, the incubation period was calculated to be not less than 6 years—the duration of leprosy approximately 14 years. Since the rigid rules for parole have been in effect, and with better institutional facilities, relapses in discharged patients have been uncommon, and the mortality rate has been definitely decreased.

New Method of Treatment of Pruritus Senilis. J Borak. Strahlentherapie; 29:245 (June 30) 1928. This author regards pruritus senilis as a disturbance of metabolism. It is his opinion that the end-products of the bodies' utilization of proteins accumulates in the tissues and sensitize the nerve endings, which in turn gives rise to the sensation of itching. The process is of the same nature as the skin symptoms in diabetes. He advised the irradiation of the hypophysis and the thyroid. Of ten patients so treated, after all other treatment had failed to give relief, eight gained relief within a week and have remained cured for a period of two and one-half years. Two patients with general pruritus were likewise relieved. In case of localized pruritus—vulval, facial, anal and back—the treatment is of no use, as these patients must be subjected to local treatment.

Treatment of Furuncle and Carbuncle. Heddaeus, Munchen. med. Wchnschr. 75:2052 (Nov. 30) 1928.

Heddaeus asserts that furunculosis is not caused by a bad state of the blood. It is always caused by outward conditions and usually begins in an infected hair follicle. Though some persons, diabetic patients, for instance, are more subject to this kind of infection, the immediate cause is external. He points out to prove this statement that if a patient with an isolated furuncle is properly treated, the infection does not spread. In recent years, he has employed artificial light therapy with great success in the treatment of large carbuncles. After this treatment has been applied for several days a pull on the overlying skin will permit a free escape of the pus. Later the necrotic tissues can be extracted by means of small forceps. The advantage of this method over the older methods of excision is that the resulting scar is hardly noticeable and the pains diminish after the first irradiation. Heddaeus recommends this method also for the treatment of furuncles, especially those in the axilla and on the lips.

Results of Roentgen Ray Treatment of Malignant Tumors. W. Schmidt, Strahlentherapie, 30-197. (Oct. 5) 1928.

This report is formed from the results of high

voltage treatment in the Gottingen University clinic between 1919 and 1927. His first conclusion is that for operable tumors it cannot compete successfully with surgery. He considers carcinomas of the skin an exception; when it is multiple or when the age or the cosmetic result is of sufficient importance to be considered, radiation is to be considered. If the superficial cancer of the skin proves refractory to X-ray, radical cancer surgery should be considered at once. Post-operative irradiation has improved the results in cancer of the breast. It should also be given in all cases where the operation was not radical and in all cases of sarcoma of the trunk. In all inoperable tumors except in those with extreme cachexia irradiation is worth the effort of trying. In certain tumors of the gastro-intestinal track it is found of use. He has found it useless in oesophageal carcinoma. The lymph node or bone metastase are much more resistant to roentgen ray than local recurrences. For the relief of pain in bone metastase it is of some use.

#### THE TETRALOGY OF FALLOT

Paul D. White and Howard B. Sprague, Boston (Journal A. M. A., March 9, 1929), report the case of a notable musician, Henry F. Gilbert, who for nearly sixty years of his life suffered from congenital heart disease with cyanosis and clubbing of the fingers. The case is of great interest, first, because with the tetralogy of Fallot (pul-monic or infundibular stenosis, interventricular septal defect, dextroposition of the aorta and hypertrophied right ventricle) he survived to his sixtieth year, surpassing in age all patients previously reported by more than twenty-three years, and secondly, and most significant, because he made his crippled life a great success, establishing himself in his musical profession as one of the greatest of American composers, and as a pioneer of native American music. The diagnosis of the cardiac defects was correctly made a year before his death. Fallot has demonstrated that this was possible forty years ago.

### Report of Examination for Licenses to Practice Medicine

Oklahoma State Board of Medical Examiners, Oklahoma City, Oklahoma, September 10-11, 1929.

Name	Year of Birth	Place of Birth	School of Graduation	Year of Gradua- tion	Home Address or Previous Location
Dale, Charles Dorsey	1879	Mississippi	Memphis Hos. Mcd. Col.	1904	Atoka, Okla,
Benjegerdes, Theodore D.		Manly, Iowa.	University of Iowa	1925	Beaver, Okla.
Branley, Bernard Lincoln Chandler, Edwin Allen		Melrose, Minn.	University of Minnesota	1927	Tulsa, Okla.
Davis, Stella Kukuraisitis	1901	Hubbard, Texas	Baylor University	1928	Ponca City, Okla.
Denny, E. Rankin		Chicago, III.	Rush Medical College	1927	Arnett, Okla.
French, DeKoven A.	1901	Plainville, Ind.	University of Indiana	1925	Tulsa, Okla.
Hargett, Mason Victor	1902	Sedalia, Mo.	Howard Medical	1928	Boley, Okla.
Hartman, William Vernon	$\frac{1904}{1882}$	Iowa Missouri	Northwestern	1929	Yale, Okla. Tulsa. Okla.
McClure, Harold McKinley	1903	Corinth. Ark.	Tulane Medical Northwestern	$\frac{1912}{1929}$	Chickasha, Okla,
McGrew, Edwin Allen	1898	Iowa	University of Iowa	1929	Halstead. Kansas
Rountree, Charles Ross	1898	Springfield, Mo.	Washington University	1924	Oklahoma City
Whittlesey, Frederick R.	1030	Shanghai, China	Western Reserve	1925	Tulsa. Okla.
Wilson, Herbert Alexander	1895	Wister. Okla.	Arkansas Med. College	1929	Wister, Okla.
Dillard, James Albert		Melbourne, Ark.	University of Arkansas	1910	Cashion, Okla,
Causey, George Albert	1873	Wichita, Kansas	Memphis Hospital	1900	Swifton, Ark.
Backus, Otto August		Marshfield, Wis.	University of Wisconsin	1929	Tulsa, Okla,
Craden, Paul Joseph		St. Louis. Mo.	Northwestern	1928	El Reno, Okla.
Hinckley, Robert George		Milwaukee, Wis.	University of Wisconsin	1929	Tulsa, Okla,
McQuaker, Mary		Scotland	University of Glasgow	1922	Tulsa, Okla,
Schriber, Paul W.	1904	Glenwood, Wis.	University of Wisconsin	1929	Tulsa, Okla.

### PREVENTIVE MEDICINE AS APPLIED TO TUBERCULOUS PATIENTS

The National Tuberculosis Association has procured histories of 1,499 white patients prior to their first admission to a sanatorium. All were at least 15 years of age and all were diagnosed as having pulmonary tuberculosis at the time they entered. The histories, taken by physicians associated with the institutions, were obtained in considerable detail. In addition to questions regarding matters of direct concern to the patient, a few were asked which had a bearing on the welfare of those with whom the patient had come in contact. Tuberculosis is a communicable disease. It follows that the best way to reduce the incidence of the disease is to prevent the bacillus from reaching a second host. Linsly R. Williams and Alice M. Hill, New York (Journal A. M. A., March 9, 1929), state that four questions directly relating to the spread of infection were asked each patient in order to learn something of the extent to which members of the medical profession are practicing preventive medicine so far as tuberculosis is concerned. It was illuminating to find that, though 1,496 of these 1,499 patients had consulted anywhere from one to fourteen physicians each, 625, or 42 per cent, had never been told by any physician how to dispose of the sputum. Of the 871 patients given this instruction, 677 first received it from the physician who first told the patient that his illness was tuberculosis; 107 from the physician immediately following the first, and twenty-four others by physicians still further removed from the one first telling the diagnosis to the patient. A still smaller number of patients were told by any physician that they should keep their dishes apart from those used by other members of their households and that their dishes should be washed separately. Approximately 47 per cent of the patients failed to receive instruction regarding these matters prior to their admission to the sanatorium. The advice to sleep alone was given to 63 per cent of all patients by some physician, more receiving instruction on this particular point than on any other preventive measure. However, only 61 per cent were advised as to other sleeping arrangements. The question as to other sleeping arrangements comes under the heading of cure rather than prevention, but the answers to it have a bearing on the answers to the question of sleeping alone. Taken together, they indicate that the thought of preventing infection was not always in the physician's mind when he advised his patient to sleep by himself, for 11 per cent of the 945 patients who were told to sleep alone and 12 per cent of the 919 given advice as to other sleeping arrangements were so instructed by a physician seen prior to the one who told the patient that he had tuberculosis. Except as an aid to cure, the early instruction as to sleeping seems unexplainable especially in view of the fact that the corresponding percentages for those instructed regarding disposal of sputum, use of separate dishes and washing dishes separately were six, seven and seven, respectively. A fact which calls for comment is that proportionately fewer patients who were able to have care in a private sanatorium had received instruction from their physicians prior to admission than those admitted to public sanatoriums. This was the case with respect to each one of the items noted. When the group was considered as a whole, it was evident that, the further advanced the disease at the

time of the patient's first admission to a sanatorium, the more apt he was to have received instructions previously respecting the several preventive measures. But, except in regard to sputum disposal, no such correlation existed in the case of the men or the women when considered alone. Each of the 1,499 patients from whom histories were obtained in this study was asked whether printed instructions had been given by any physician consulted. No attempt was made to go into the detail of such instructions. Seventeen per cent replied in the affirmative, the women to an extent between one-fourth and one-fifth greater than the men, and the women with moderately advanced tuberculosis to a much greater extent than any of the others. The best record on this score was shown by a group of patients reported on by one county sanatorium, 45 per cent of whom had received printed instructions from some physician prior to their admission. The histories in this group reveal that instruction of tuberculous patients by their physicians in precautionary measures is not especially related either to the stage of the disease on admission or to the sex of the patient. Rather, the proportion of patients instructed with the communities served by the sanatoriums and the extent to which their interest in preventive medicine has been aroused. By far, too large a number of physicians gave none of the instructions asked about. Some who did stressed one point to the exclusion of others, some another. In view of the fact that the average physician sees only a few cases of active tuberculosis in the course of a year, he cannot be expected always to be a perfect instrument for the dissemination of advice to the patient; but this study would indicate that in the medical profession as a whole insufficient thought is being given to preventive medicine. One fact is evident: The saturation point has not yet been reached in the need for stressing prevention.

#### TRICHINOSIS

Henry F. Stoll, Hartford, Conn. (Journal A. M. A., March 9, 1929), reports on three cases of trichinosis. He asserts that two of the cases presented diplopia and one polyserositis. It would seem that the history of severe pains in the legs, and the presence of an eosinophilia in the blood and pleural effusion together with the strong precipitation test, establishes the diagnosis of trichiniasis with reasonable certainty, even though trichinae are not obtained in the muscle excised. The finding of 85 per cent of eosinophils in the pleural fluid would favor trichiniasis, even though trichinae were not found. If the patient is seen very early, the diagnosis may be made by finding the trichinae in the blood or by stool examination. Eosinophilia is not present at this time. It is believed that the toxic symptoms are due to the absorption of the large amount of destroyed muscle that results from the invasion of trichinae rather than from the parasite itself.

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#### POST-OPERATIVE THROMBOSIS AND PULMONARY EMBOLISM

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The occurrence of pulmonary embolism in post-operative patients was formerly accepted as an act of Providence that was not amenable to treatment, prevention or cure. Aroused by the great increase of these dreaded and disastrous complications reported during the past ten or twelve years, clinicians have been employing a number of measures to prevent their occurrence, and have called upon research workers to ascertain their causes.

Statistics from surgical clinics of this and European countries, show a death rate since 1916 of about 0.25 percent for all operations due to pulmonary emboli. This is about double the rate shown for a like number of years preceding this date.

Some explanations that have been offered to account for this increase are as follows: It is an established fact that the percentage of pulmonary embolism is much higher in patients of advanced years, and a greater number of operations are being done on older people. This is especially true of the operations of prostatectomy, hysterectomy, cholecystectomy, and extensive dissections for removal of malignant growths. All of these being operations showing a high rate of occurrence of this condition. Another reason is the prevalence since 1918 of influenza. This disease affects its victims in some way that makes the formation of thrombi more frequent. Another reason advanced is that the hardships endured during the World War by both soldiers and civilians have resulted in a larger proportion of the population being afflicted with varicosities, a condition that leads all others in thrombus formations. Still another explanation, and this is regarded by many as the most important, is that these conditions are being recognized and correctly diagnosed. Undoubtedly some of the cases formerly diagnosed as anesthesia pneumonia were multiple small pulmonary emboli and infarction, caused by the fragmentation of a beginning thrombus and many cases of sudden death attributed to heart failure were caused by massive emboli in the pulmonary arteries. On the other hand, it is probably true that since pulmonary embolism has become a popular diagnosis, many conditions diagnosed as such have been due to other causes.

Research workers have demonstrated that the blood in the blood vessels is kept in its normal fluid conditions by a balance between the thrombin and thrombin forming elements, and the anti-thrombin elements. Thrombin and the thrombin forming substances are pretty definitely known but anti-thrombin is as yet a theoretical substance that experiments indicate comes principally from the intima of the blood vessels and from hepatic tissue. It is only when the normal balance is disturbed by an increase of the thrombin substances or a decrease in anti-thrombin that it is possible for a thrombus to form. If a normal vein is allowed to fill with blood, and then ligated carefully so as to not injure the intima, it will remain for several days with no clotting of the stagnant blood in the section between the ligatures. This demonstrates that venous stasis or a slowing of the circulation will not produce a thrombus in a normal blood vessel. The changes in the blood vessels making it possible for a thrombus to form are apparently confined to the intima. Some of them are known and others are as yet unsolved. Mechanical injuries by pulling on blood vessels, crushing by instruments, pressure by rigid drains, bring about these changes, as do localized infections in the surrounding tissues. The intima of a varicose vein is usually normal but the incidence of thrombosis is much higher than in other veins. Just what the changes are that occur in the intima of a varicose vein, in the veins of persons of advanced years, and those having or who have recently had typhoid or influenza, are not known, but it has been observed that they play an important part in thrombosis.

When these changes are present in the

intima together with changes in the blood increasing its coagulability, then stasis or slowing of the blood may contribute to thrombus formation. Slowing of the circulation is a common occurrence in postoperative patients. This is sometimes aggravated by position of the body or limbs interfering with the return flow of blood.

Some of the post-operative conditions that disturb the normal balance of the thrombin elements and anti-thrombin are as follows: Loss of body fluids and starvation causes a great increase in the tendency to clot formation. Ether anesthesia seems to destroy the anti-thrombin content of the blood and this change persists for from 6 to 12 days. Suprarenalin, whether injected into the body with local anesthetics or produced and thrown into the circulation to overcome shock, increases the clotting tendency of the blood by stimulating the production of the thrombin elements.

Some of the causes for a thrombus becoming dislodged are understood. Marantic thrombi are very loosely attached to the vessel wall and increases of the pressure of the blood behind them, or movements of the vessel wall by muscular action or external pressure, is enough to start them moving. Thrombosis in an infected vein is a protective process but sometimes the infection proceeds to the point where the attachments of the thrombus are dissovled and it is set free, or it is broken up and the fragments carried away. A thrombus in a branch vein may continue to form until it projects into the larger vein, where the blood current will break it off and carry it away. The thrombus may be invaded by an unusually large number of leucocytes causing it to disintegrate and the fragments be carried away. A thrombus may become dislodged by active contractions of the surrounding muscles or by ill advised massage.

The usual symptoms of thrombosis are too well known to go into here. One symptom that has been emphasized of late is a slight rise of temperature in the afternoon in clean cases for a longer time than there is any ascertainable cause.

The symptoms of pulmonary embolism depends on the size of the embolus and the artery that is plugged. When both pulmonary arteries are occluded, death is almost instantaneous. If one of them is completely occluded, there is the condition of agonizing pain, intense dyspnea and orthopnea, with death usually in a few minutes. From

these fatal cases, the symptoms range through all gradations to the embolism of the very small arteries when the only symptoms are pleurisy pains, when the affected area reaches the pleura, or a blood stained sputum where only internal areas of the lung are involved.

The end results in the affected areas of the lung depend on the size of the embolus and whether or not it carries infective bacteria. Sterile emboli in the larger arteries usually become canalized and the function of the involved portion of the lung is restored wholly or in part. When the small branches of the arteries are occluded by sterile emboli, they usually remain closed, due to organization of the clot, and the resulting infarct undergoes a process of fibrosis and contraction. Septic thrombi produce pneumonic processes or abscesses in the lung, depending on the bacteria included and the resistance of the patient.

From what has been said, it is plain that the unknown factors of thrombus formation and their dislodgment to form emboli are problems for the physiologist to solve. Then it will be up to clinicians to apply the findings in the treatment of their patients.

With our present knowledge, there are several things we can do to lessen the occurrence of this dreaded complication. By careful and gentle handling of all tissues during operations and using care in placing rigid drains, we can avoid mechanical injury to the blood vessels. Getting the patient in the best condition possible under existing conditions before operation. This includes cleaning up infective foci, building up resistance by proper nourishment, or blood transfusion if indicated, and supplying plenty of fluid to the tissues. After operation we can prevent dehydration by proctoclysis, hypo-dermoclysis, or by intravenous administrations until the patient can take sufficient fluid by mouth. In persistent vomiting, starvation may be prevented by giving glucose, with or without insulin, intravenously or by proctoclysis. It is advisable to avoid as far as practicable prolonged ether anesthesia, and to limit the amount of suprarenalin injected with local anesthetics. Prevent hemorrage as much as possible by careful hemostasis. using all means at our command to prevent shock or in its treatment when it has developed. Elevating the lower limbs or the foot of the bed when the return circulation is noticeably slowed. Proper supportive bandaging of the legs when varicose veins are present. Frequent change of position and early movements of the limbs. Avoid pressure where it will interfere with circulation. Heart stimulants when circulation is weak. The administration of citrates probably reduces the tendency to thrombus formation, and it is claimed that the intravenous administration of 15 c. c. of a 10 percent solution of sodium citrate will arrest the process if a thrombus is forming.

To prevent embolism when thrombi are known to be present, avoid active movements and manipulations and massage of the affected parts until the thrombi have time to become organized and firmly adherent.

We have no effective treatment for massive pulmonary embolism.

Opening the chest, opening the pulmonary artery, removal of the clot and repair of the artery has been suggested, but is not practical. Treatment of embolism of the branches of pulmonary arteries not large enough to cause immediate death, consists of giving morphine to relieve pain and quiet the patient, and later treat symptoms as they arise.

If we keep constantly in mind the possibility of the occurrence of these complications and use the indicated measures when they threaten or occur, the death rate from them can be lowered from what it is at present.

#### BRONCHOSCOPIC TREATMENT OF ABSCESS OF THE LUNG WITH CASE REPORT

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The object of this brief paper is to emphasize the value of bronchoscopic drainage and treatment in abscess of the lung. McCrae states in a paper, one of a symposium on Suppuration of the Lung, that "The value of bronchoscopy in abscess of the lung gains recognition slowly," and "That when rupture has occurred into a bronchus, bronchoscopic drainage is without question the treatment to be tried first."

Bronchoscopy has been done chiefly for the removal of foreign bodies from the lungs, and its use in the diagnosis and treatment of lung conditions has been neglected. Chevalier Jackson states that in the Philadelphia Clinics, the bronchoscopies performed for disease outnumber the bronchoscopies for foreign bodies, tenfold.

Abscess of the lung following some operative procedure on the upper air passages are of especial interest to the otolaryngologist and especially so if a patient on whom he has done a tonsillectomy develops within a few days or weeks, a cough and temperature and begins expectorating foul smelling pus.

No doubt many of these abscesses which are due to aspiration of infected secretions at the time of operation are not associated by the physician with the operation because of a comparative long interval that sometimes elapses between the time of the operation and the dvelopment of symptoms.

It is this type of abscess due to inhalation that can best be treated by bronchoscopy as they are always in relation to a fair size bronchial branch.

By bronchoscopic aspiration, purulent secretions too thick to drain out by the postural method, can be removed by suction and medication then locally applied. It is apparently the removal of the secretion rather than the medication that does the most good. These treatments are usually given twice a week for as long a time as necessary to clear up the infection or until some other method of procedure is deemed advisable. Monochloro-phenol is the medicine now being used in the Jackson Clinics in these cases.

Mrs. B., age 35, came to the Clinic, October 27, 1928 because of temperature, cough, expectoration of foul smelling pus, loss of weight and strength.

She states that on July 12, 1928, she had a tonsillectomy done under general anesthesia, slight secondary hemorrhage on the fourth day; on the eight day she developed temperature and cough and she has been coughing since that time. At times she has a spasm of coughing and expectorates a large amount of foul smelling blood streaked material, after which she feels better.

Family history is negative.

Personal history is negative in regard to the present condition except for abscess of tonsil in February and June, 1928.

Physical examination: Patient is a rather thin, brunette woman. Eyes—pupils equal and react to light and accomodation. Nose—negative; mouth—teeth and gums in good condition; throat—mucous mem-

brane injected. There is considerable tonsil tissue remaining in the right fossa, the left posterior pillar shows a small perforation. Chest—inspection shows diminished expansion of the right side, relative dullness in the right lung with most pronounced dullness detected over area of the third rib and in this area, definite moist rales could be heard. Disseminated rales could be heard over the entire upper lobe.

The clinical diagnosis was made on the history, character of cough, profuse expectoration and fetid odor.

Laboratory reports: *Urine*—acid reaction, albumen, sugar and acetone negative, many bacteria, 4 to 5 leucocytes per field. *White blood count*—20,200, polys 89 percent, S. L. 11 percent, L. L. 1 percent. No tubercle bacilli found in sputum examination.

X-ray shows a dense shadow area in region of upper part of lower lobe or middle lobe on right side about half way between hilus and periphery of lung, which would indicate abscess of lung at 3rd interspace posteriorly.

Lipiodol injection into the right lower bronchus through the bronchoscope. X-ray report—Lipiodol shows a distinct abscess cavity in region of right lower lobe.

Bronchoscopic drainage and the insillation of 10 c. c. of a 1 percent argyrol into abscess cavity was done at four days intervals for five treatments.

After the first treatment there was slight improvement in the cough and the sputum expectorated was not so foul smelling. After the third bronchoscopic treatment, the patient was coughing very little and expectorating only a small amount of pus, this mostly in the morning.

The patient rapidly gained in strength and weight and she was discharged to her home thirty days after entering hospital. She was still coughing very slightly and at times raising a small amount of secretions from the lungs.

In a letter from the patient about three weeks after leaving the hospital, she states that she is continuing to improve and is coughing very little.

In another letter from the patient, written seven weeks after leaving the hospital, she says she has gained eleven pounds and wants to return to work.

On February 7, 1928, patient reports at office for examination of the chest. She has gained greatly in strength and 16

pounds in weight since leaving the hospipital November 25, 1928. She is now engaged in ordinary activities of life but has not resumed her work. She still tires easily on exertion. Examination of the chest by Dr. W. W. Rucks: Lungs resonant thruout on percussion, on auscultation, breath sounds are clear thruout with exception of a faint crackle heard at base of right lung posteriorly, on deep breathing.

The rapid improvement this patient made after instituting the bronchoscopic treatments and the comparatively short time that elapsed before she was free from all symptoms of the abscess, would indicate that this method of treatment is the one that should be tried first when the abscess is so located that it is accessible to the bronchoscope.

#### ENTEROSTOMY AND SODIUM CHLORIDE THERAPY IN PERITONITIS

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In the field of abdominal surgery, peritonitis is such a serious problem that any addition to our standard methods of treatment is always welcome if it offers any possibility of a decrease in mortality. There is no specific treatment and therefore the therapy must be largely symptomatic. To outline a treatment here for all types of peritonitis is obviously unreasonable when it is considered that peritoneal infections have such a wide variation in etiology, distribution in the abdomen and individual susceptibility. This discussion will be confined to a consideration of general peritonitis which so frequently follows operation, perforations of the intestinal tract and appendiceal infections.

A complete presentation of this subject would necessarily carry us far afield and involve especially a discussion of paralytic ileus and intestinal obstruction. The relationship of these two conditions to peritonitis is still incompletely understood and consequently the differential diagnosis is, in many cases, extremely difficult. I believe, however, that it is safe to say that abdominal distention associated with a known peritonitis should be considered at least a potential intestinal obstruction and treatment instituted for its relief as a part of peritonitis treatment.

It seems quite probable that intestinal stasis with its resulting toxaemia, plays an

important role in the symptoms and death resulting from a majority of general peritoneal infections. But, knowing the effect of bacterial infections elsewhere in the body, one is hardly justified in concluding that a toxaemia cannot develop from the infected peritoneum. In an interesting series of experiments, David and Sparks' have shown that colon bacilli will pass from the peritoneal cavity into the thoracic duct and directly into the blood vessels. A plastic peritoneal exudate retards this passage of colon bacilli but a transudate has no such effect. They have further shown that diphtheria toxin passes directly into the lymphatics and blood stream under like conditions. They are, therefore, of the opinion that the severe toxaemia associated with general peritonitis must be caused in some degree by absorption of bacterial toxins from the peritoneum.

Mr. Seton Pringle' of Dublin has remarked as follows: "I believe that death in acute septic peritonitis was not, in most cases due to absorption of the products of the suppurative inflammation of the peritoneum, but to intestinal toxaemia, secondary to paresis of the inflamed intestine." Sampson-Handley' has also expressed the belief that the fatal dose of poison is usually absorbed from the intestine above an obstruction and not from the peritoneal cavity. The latter author also believes that if peritonitis does not produce obstruction, an infection within the peritoneal cavity may become universal without being fatal.

Hertzler' states that "In no chapter in the study of the peritoneum is the state of our knowledge so unsatisfactory as that concerned with the cause of death in peritonitis." The essential factors to be considered in the cause of death resulting from peritonitis are chiefly as follows: Absorption of toxins from the infection direct, possible effect upon the nervous system, mechanical pressure associated with obstruction, absorption from an obstructed intestine and dehydration.

In considering the problem from the broad viewpoint, it would seem that both bacterial toxaemia from the peritoneal infection and intestinal obstruction play major roles in illness and death due to this disease. If this be true, any treatment that would tend to counteract the effect of these two conditions would be of great importance. With this in mind, I should like to discuss briefly the treatment from the standpoints of supply of water and sodium chloride and timely enterostomy to drain

the bowel of its toxic content and restore peristalsis.

It has been definitely proven that dehydration and hypochloraemia are of great importance in the lethal outcome of intestinal obstruction. Gatch, Trusler and Ayers, and Wangensteen and Chunn believe that death in simple high obstruction is definitely due to loss of water and chlorides and not to a toxaemia arising from the contents of the obstructed gut. Whether this be strictly true or not, if the symptoms arising from a spreading peritonitis are due in part to stasis within the bowel, it is then logical to treat the condition as intestinal obstruction should be treated, which should include large quantities of sodium chloride solution. As a basis for the belief that there is a definite similarity between general peritonitis and simple high intestinal obstruction, we have found that the changes in the blood chemistry are quite similar. In both diseases there is constantly an increase in the urea nitrogen and non-protein nitrogen and a fall in the chlorides'. These chemical changes have been noted in the blood of several patients with peritonitis resulting from appendicitis, perforation of gall bladder, perforation of duodenal ulcer and resection of the colon. They are a definite indication for the use of sodium chloride administered as sodium chloride solution. We have shown by experiments upon dogs with general peritonitis, that those given sodium chloride solution survive almost three times as long as those used as controls.

Even in a brief consideration of peritonitis, the work of Costain' on thoracic duct drainage and the observation of Williams10 and others on treatment with Bacillus Welchii antitoxin should be mentioned. Costain expressed the belief that thoracic duct drainage was beneficial in peritonitis, assuming that the toxic products of the disease were thus eliminated Steinberg the body. from experimental evidence that thoracic duct drainage has no value. Certainly it has not been widely adopted as a therapeutic measure in general peritonitis. B. W. Williams has treated several patients with peritonitis resulting from appendicitis with the antitoxin of the Welch bacillus (bacillus perfringens). He reports a reduction of mortality from 6.3 percent to 1.17 percent. The rationale of this treatment he based upon the finding of the bacillus Welchii in the vomitus and obstructed intestine in a high percentage of cases and assuming that it produces a toxaemia from within the bowel. Bower and Clark12 report beneficial results with the use of this antitoxin in peritonitis, noting especially that their patients showed less restlessness, needed less morphine and peristalsis was resumed more quickly. After the study of eleven cases of diffuse peritonitis, they conclude that the treatment "merits the favorable consideration of perfringens antitoxin as a therapeutic agent of probable value in acute intestinal obstruction and peritonitis associated with toxaemia." Morton and Stabins12 have noted improvement in experimental animals by using this antitoxin and conclude that it has a specific action in the treatment of intestinal obstruction. Copher, Stone and Hildreth" rather guardedly conclude from their experimental work that the medical profession is warranted in making a further clinical trial of bacillus Welchii antitoxin as an adjuvant in the treatment of acute general peritonitis and acute intestinal obstruction. The opinion of McIver, White and Lawson<sup>15</sup> casts some doubt upon the value of this antitoxin in the treatment of the toxaemia of acute intestinal obstruction.

The real value of bowel drainage in peritonitis is somewhat difficult to determine from the literature. Reports of Pringle. Sampson-Handley and Hubener<sup>16</sup> are very encouraging and should receive careful consideration. In the type of lower abdominal peritonitis described as "ileus duplex" by Handley, drainage of the gut is undoubtedly a logical procedure. This author recommends jejunocolostomy between a loop of the jejunum and transverse colon in addition to a caecostomy. This is advocated to drain the upper small gut into the colon to avoid the ileal obstruction in the pelvis and to drain the colon at the caecum to the outside to avoid the obstruction that occurs in the sigmoid region. The chief objection to the operation would seem to be its magnitude.

Our personal experience with enterostomy as a treatment for peritonitis has been limited to six cases. Four of these patients had a diffuse peritonitis involving the entire peritoneal cavity and in two the infection was confined chiefly to the lower portion of the abdomen. All of the six patients had evidence of bowel obstruction with vomiting and loss of chlorides. In the two in which the infection appeared to involve the lower abdomen, the signs

of obstruction were more definite. In these cases, visible peristalsis was at times evident.

The four patients having the extensive peritoneal involvement, all died within four days following the enterostomy. The two having lower abdominal involvement both recovered promptly and were relieved of their peritonitis and bowel obstruction without further operative interference.

We recognize the fact that four of these enterostomies were done as last resort procedures and can hardly be considered a fair estimate of the true value of bowel drainage in extensive peritonitis. Early drainage in these cases before peristalsis was abolished and before the infection had reached the upper portion of the abdomen, may have given a different result. The other two patients were ideal for enterostomy and resulted in cures as expected.

#### GENERAL SUMMARY OF TREATMENT

In the treatment of peritonitis, the more or less standard methods including operation, drainage, posture, gastric and duodenal lavage, and morphine, should not be neglected, but should constitute a part of the treatment, supplemented by the intelligent use of sodium chloride solution and enterostomy when indicated. The value of thoracic duct drainage and the Bacillus Welchii antitoxin are yet to be determined.

How much sodium chloride solution should be given and when should enterostomy be done are the two questions that naturally arise. The quantity of salt should logically be governed by the state of the chlorides in the blood. It is realized, of course, that facilities for chemical studies of the blood are not always available and a working rule is desired that may be applied in most cases. It has seemed logical, in the toxic cases of acute intestinal obstruction, to administer one gram of sodium chloride per kilo of body weight during the first twenty-four hours. In acute general peritonitis with toxaemia and vomiting, the same rule applies as in acute intestinal obstruction. Water should be given in sufficient quantity to relieve the dehydration. This may at times be difficult to estimate but certainly no less should be given than the average quantity taken daily under normal conditions. This quantity usually averages from two to three liters. A good minimum to set in the administration of sodium chloride is 3 liters in 24 hours. This is by no means sufficient in those patients who are vomiting

and quite toxic. Twice three liters could not be excessive in the early treatment of such cases. When it is considered that from 7 to 10 liters of liquid may be secreted into the upper intestinal tract in 24 hours under normal conditions as gastric juice, bile, pancreatic juice and succus entericus, it is easily understood that large quantities may be lost by vomiting when the small intestine is obstructed. There is much greater liklihood of giving too little than too much water. Distilled water should not be given alone either in the vein or subcutaneously. It has been proven experimentally that the administration of water alone is not sufficient to relieve the toxaemia and prevent protein destruction". The addition of sodium chloride does prevent the increase in urea nitrogen and

non-protein nitrogen formation in the blood and aids in water balance and distribution. Sodium chloride may be given as a physiologic solution or in one or two percent concentration under the skin and up to five percent in the vein if given very slowly. Proctoclysis should be given but should not be depended upon alone to relieve the dehydration and hypochloraemia in the severe cases.

Glucose is of great value as a food and diuretic when given intravenously in either general peritonitis or acute intestinal obstruction. It may be safely given in 10 percent solution at a rate of 500 c.c. per hour. If given more rapidly, it is likely to pass through the kidneys and not be utilized by the body. The glucose may be given in combination with sodium chloride.

To be effective in diffuse peritonitis, enterostomy should be done early before peristalsis has been abolished. After the bowel is paralyzed, an enterostomy will drain only one segment. In certain types of rapidly spreading peritonitis with a liquid exudate, it is doubtful if any type of treatment is of much avail. In that type of peritoneal infection which involves chiefly the lower portion of the abdomen, associated with pain, vomiting and evident active peristalsis enterostomy is often ideal. As soon as the bowel is opened, drainage begins at once, resulting in relief of pain, cessation of vomiting and decrease in distention. In many of these cases, the obstructive symptoms are due to the paresis of the gut involved in the lower abdomen and as soon as the inflammation subsides or becomes localized, the function of the bowel is restored without further surgery. In this type of case, an exploration of the lower abdomen in the presence of infection and paralyzed bowel is a dangerous and useless procedure while jejunostomy is an ideal treatment.

#### TECHNIC OF ENTEROSTOMY

The site of election for opening the abdomen is usually through the upper left rectus muscle. The first portion of gut presenting, which is usually the jejunum, is selected for drainage. A small loop is gently lifted from the abdomen and two purse string sutures, one around the other, of No. 1 chromic catgut, are placed. Within the

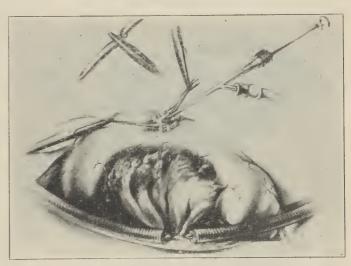


FIG. I. Technic of enterostomy showing method of aspirating loop of gut with trocar and placing of purse string sutures.

circle of those sutures, a trocar is thrust into the gut and the liquid contents drawn off. If the flow is quite free and difficulty is experienced in emptying the gut locally, the ordinary intestinal clamps may be used to isolate the bowel segment (Fig. 1). A number 20 catheter with an additional aperture made near the end is then inserted quickly to avoid leakage after withdrawal of the trocar. The inside purse string suture is drawn tightly about the catheter and the catheter fixed by passing the needle through its wall and tying. The gut wall is then invaginated and the second purse string tied. Following this, the tube is sutured within the folded wall of the gut after the method of Witzel with an additional stitch passing through the



FIG. II. Suture of bowel wall over drainage catheter after the method of Witzel. To hold tube in place suture is passed through its wall.

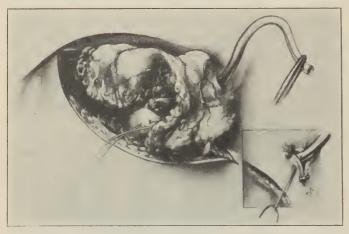


FIG. III. Catheter passed through omentum and omentum sutured to intestine. A stab wound is made for catheter exit.

wall of the catheter at the end of the suture line (Fig. 2.). The tube is then passed through or surrounded by omentum as advocated by C. H. Mayo<sup>18</sup>. The omentum is a protection against leakage and prevents adhesions between the bowel and abdominal wall after the drainage tube is removed (Fig. 3). The tube may be passed through a nearby stab wound or sutured in the operative wound as desired. In six to eight days the catheter will loosen and can easily be removed after which time it has usually served its purpose. With this technic, a fistula will rarely be encountered. Adequate drainage is obtained without the probability of a second operation to close the gut as is likely to occur if the bowel wall is sutured to the skin. The method is also much cleaner and wound infection is less likely to result.

#### RESULTS

- 1. The free use of sodium chloride solution to water and chemical balance has proven of much benefit both clinically and experimentally in the treatment of general periton-
- 2. Enterostomy is a justifiable operation in general peritonitis and may be life saving if done early.
- 3. Enterostomy is definitely indicated in selected cases of lower abdominal peritonitis with obstructive symptoms. In such cases, exploratory operation to relieve the obstruction is extremely dangerous and should rarely be done.
- 4. Treatment of general peritonitis with enterostomy and administration of sodium chloride solution should not be done to the exclusion of other accepted methods of treatment such as abdominal drainage, application of moist heat, morphine enemas, posture and gastric and duodenal lavage.
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#### VISCEROPTOSIS AND ITS RELATION TO ABDOMINAL SURGERY

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This subject has been hashed and rehashed until we would think that its importance had been properly drilled into our minds. However, it is so frequently overlooked and given such scanty mention in our text books that a brief reminder may not be out of place.

From 1768, when Haden published his first article until 1887, when F. Glenard's publication appeared, there was little interest displayed except in nephroptosis. Since that time there has been the usual swing from extreme to extreme. From the subject for spectactular futile operations, it has come to be almost totally disregarded.

There are two types: the "asthenia congentia" of Glenard, represented by the neurotic individual complaining of varied and indefinite symptoms, and the acquired type represented by the previously healthy individual complaining of definite abdominal discomfort. The first type we will disregard; the diagnosis is made by observing the long, thin abdomen, protruding in the lower segments, and the evident unstable mental make up. The other type should be of particular interest to the surgeon. It is our most frequent stumbling block.

In this day of simple comparatively safe abdominal procedures, we may be possibly condoned for removing the appendix when the only symptom is soreness in the right lower abdominal quadrant; or for removing the gall bladder when there is no shadow after the dye and when there are dull pains in the upper right quadrant, "bloating" after meals, and tenderness over the gall bladder area. The patient recovers and leaves the institution, as far as we know he is cured. Frequently he is not but goes on his way disgusted with surgery and, as he believes, he has been under the best of care, he either joins one of the cults or goes from physician to physician. His symptoms persist after removal of the supposed pathology and may simulate any type of abdominal lesion, but, as a rule, it will be brought out on careful questioning that the pain is never present or subsides soon after assuming the recumbent position. In my opinion, this is the only differential point between true pathology and ptosis of a viscus.

The symptoms, diagnosis and treatment may be brought out by representative cases.

No. 1.—J. K., age 31, mechanic, wt. 171 lbs. Complaining of pain in the right lower abdominal quadrant of three years duration. Appendix removed by a competent surgeon with no relief of symptoms. Pain

usually present after eating but relieved by lying down. G. I. by radiologist reported negative. In the upright position, under the fluoroscope, the hepatic flexure was seen below the crest of the ilem. A supportive belt was advised and since that time (almost three years ago) he has been free from symptoms while wearing the belt. He has attempted to go without support but always has a recurrence of symptoms.

No. 2.—B. N, age 28, housewife. Complaining of pain in the upper right quadrant, "gas on stomach," and vomiting. The vomiting became very persistent and the patient lost weight rapidly. X-ray diagnosis of cholelithiasis. On operation, a thickened gall bladder with a calcified ulcer on the fundus was found. The appendix was removed at the same time. The patient made a slow recovery and after being allowed up, the vomiting and pain recurred. Under the fluoroscope, there was evidence of marked visceroptosis. Her symptoms have subsided since support was supplied and she has gained twenty pounds in the last year. She persists in arranging her belt while she is in the upright position and has recurrences when she does so.

No. 3—Mrs. C., housewife, age 40. Complaining of dragging pain in both lower abdominal quadrants. A pan hysterectomy had been done at one of the "clinics" with no relief of symptoms. On fluoroscopic examination in the upright position, the colon was seen bunched in the pelvis, in the recumbent position, the colon could be massaged up to its normal position. A supportive belt did not hold the viscera and we were forced to advise rest in bed with the foot of the bed elevated. Since then she has gained weight and is up and coable.

No. 4—L. C., traveling salesman, age 50. Complaining of acute pain in the epigastrium after eating, pain relieved by vomiting or by lying down and massaging the abdomen. As he was a rather obese individual, we were surprised to see the lesser curvature of the stomach parallel to the spine and the pyloris below the level of the umbillicus. We have seen him a number of times in the past three years and he states that he has no recurrence as long as he wears his belt.

## CONCLUSIONS

- 1. Visceroptosis may simulate many abdominal lesions.
- 2. A surgeon should observe his patient under the fluoroscope no matter how confident he is of his radiologist's ability.

3. Confidence in surgical procedures may be restored by a more conservative view point by the surgeon.

## TANNIC ACID TREATMENT DE BURNS\*

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The use of tannic acid in treatment of burns was first brought out by Dr. Edward C. Davidson' who published the result of his clinical use of this drug in burns in 1925. The treatment of burns by other means had not been satisfactory in our hands and we were very willing to try any new methods that might be suggested.

In a burn, the constitutional reaction is due to the absorption of a toxic substance or substances from the burned area. The theory upon which this drug acts is that the tannic acid coagulates the toxic secretion that is produced by the burns, tans the burned areas, fixes any toxic material that may be present in the burned areas and prevents its absorption. Incidentally, the local astringent effect of the tannic acid prevents the loss of body fluids.

In severe burns, patients generally die within the first twenty-four hours from shock, and tannic acid or any other mode of treatment applied to the burns will not prevent these fatal cases from occurring. It is in the period of absorption which occurs within a few days following the burn that tannic acid prevents the absorption of this toxic material.

The management of a burned case is about as follows: The patient is first given a hypodermic of morphine, if necessary, to lessen the pain. The burned areas are then covered with a saturated sterile gauze soaked with 2 1-2 percent or 5 percent aqueous solution of tannic acid. Some men have advocated the use of a spray of tannic acid solution as it prevents the peeling off of some of the tanned tissue when the dressings are removed. The tannic acid is made up fresh just before using—you may have on hand a measured amount of tannic acid powder and all that is required is the addition of the water. To make the solution fresh, four teaspoonsful of tannic acid powder added to a glass of water makes approximately a 2 1-2 percent solution. On standing, the solution deteriorates. For physicians using this treatment for burns, I would suggest that they keep tannic acid powder on hand at all times so that no time would be wasted in the application of the solution to the burn. We have removed the tops of the blebs so that the solution would come in contact with the under-lying burned area.

The burned areas may be inspected at intervals of 12, 18, or 24 hours so that as soon as the burn has assumed a brown color, all the dressings may be removed. If the burns are well tanned, the dressings are removed and left off, and the burns allowed to dry under a cradle with electric lights on it. At no time should the burned area be moistened with boric acid or other aqueous solutions as this allows the absorption of the toxic substances.

In a few days the tanned tissue begins to curl up at the edges and in the superficial burns, a healthy pink skin is found beneath. To aid in the removal of this tanned tissue, vaseline or oil may be applied to the skin. The application of the tannic acid has an analgesic effect and the patient has less pain than with other means of treatment. As the tanned crust is loosened healthy granulations are found beneath the burn and epithelization seems to be encouraged by this treatment as the superficial crust acts as a bridge for the spread of the epithelium over the burned area. There is apparently less scarring following this treatment than in any other we have ever used. In the deeper burns, such as are found in electrical burns in which the whole thickness of the skin and underlying structures are burned, the coagulating effect of the tannic acid is lessened to such an extent that infection occasionally occurs in the underlying sloughs.

Should infection occur beneath the crust, it is necessary to excise the crust and any devitalized tissue removed, and Dakin's solution or acriflavin solution applied to the infected areas. Subsequent skin graft can be done.

In our experience, the best results in the tannic acid treatment have been attained in burns due to actual flame or steam. We have used this treatment rather extensively on electrical burns, the majority of which have been third degree burns, and even in this type of case the toxemia from the absorption of devitalized tissue is less when treated by tannic acid solution than in other forms of treatment but the results have not been as satisfactory as those in

<sup>\*</sup>Read before the Surgical Section Annual Meeting Oklahoma State Medical Association, May, 1929, Oklahoma City.

which the burn has been obtained from actual flame or steam. This condition is not unexpected as it is well known that electrical burns are generally very penetrating and the sloughs very deep.

The mortality from burns is lessened by this form of treatment. Beekman' reports that the mortality has been decreased from 28 to 15 percent in a series of 434 cases of burns in children. This decrease of mortality is the result of lowering the death rate from toxemia by two-thirds. In our industrial cases, we have been able to return the patients to work earlier than previously.

We have used this method of treatment on practically all our burned cases since 1926 and believe it is the best form of treatment of burns that we know of at this time. It is superior because:

- 1. It does away with the greasy, oily, time consuming, daily dressings usually used.
- 2. It is a method of treatment that can be used by any physician.
- 3. The patient has less pain with this means of treatment.
  - 4. The danger of infection is lessened.
- 5. There is less systemic constitutional effect from the burn.
- 6. There is less scar formation and more rapid healing.
- 7. The mortality from burns is decreased by this treatment.



R. McC. NOVEMBER 14, 1926.

Patient Mr. R. Mc. was burned on November 12, 1926, while working in a manhole and there was a gas explosion and he sustained marked second and third degree burns of the face, neck, ears, forehead and hands.

Application of tannic acid solution was given immediately and the patient had very little distress.

Photographs were taken on November 14th, and another set on December 1st, the last pictures were taken on February 5th, 1927. The patient returned to work about the middle of January, 1927.

Attention is called to the lack of scarring and the small amount of contracture occurring in the hands.





R. McC. DECEMBER 1, 1926.









G. E. and V. B.

Patients G. E. and V. B. were working in an underground tunnel on April 7th, 1929, when the gas became ignited and they sustained burns of the face, neck, and hands. First aid treatment was the application of some kind of ointment and when they were first seen by us, they were in considerable pain. The ointment was cleaned off and tannic acid treatment was instituted. After the application of tannic acid, they had no more pain and it was never necessary to give them any kind of medication for pain.

Mr. B. returned to work on April 19th, 1929, and Mr. E. returned on April 23rd. The photographs show Mr. E. and Mr. B. The first pictures were taken on April 9th, and the second on April 30th. Attention is called to the lack of scarring.



MR. C. R. O.



Patient Mr. C. R. O. received a second degree burn of the entire face and forehead from a flash from a D & W oil fuse on April 19th, 1929. Tannic acid treatment was immediately applied. The patient had no pain. It was never necessary to give him any opiate. He was in the hospital only a few days and returned to work on May 6th, seventeen days after he was burned.

The first photographs were taken on April 21st, and the second on May 15th, 1929.

### REFERENCES

- Edward C. Davidson: Tannic Acid in the Treatment of Burns. Surgery, Gynecology and Obstetrics, August, 1925, pages 202 to 221.
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## SPINAL ANAESTHESIA\*

W. C. VERNON, M.D. OKMULGEE

Spinal anaesthesia or subarachnoid block has, since its introduction into surgery by Bier in 1898, gone through the same cycle as have many other new procedures; grown rapidly into popularity and then just as rapidly declined into almost oblivion, only to be taken up again and by intelligent research done by earnest and able workers, it has gained a high place in the minds of surgeons in various

\*Prepared for Surgical Section, Oklahoma State Medical Association, Oklahoma City, May 27-29,

parts of the country. It has changed from a hazardous procedure to one of perfect safety in so far as operations below the diaphragm are concerned. Of course, for this to be a safe procedure it is imperative that one using this method of anaesthesia must be perfectly familiar with and experienced in following an accepted technique, for example, that of Dr. Gaston Labat. Naturally, having had Dr. Labat's course his is the technique I follow. Dr. Labat reports the use of spinal anaesthesia in several thousand cases without a single fatality. This certainly is very definite proof that it is safe in the hands of an experienced operator.

The technique is as follows: One hour before the anaesthesia is to be induced, give the patient 1-6 gr. of morphine and 1-300 gr. of scopalamine hypodermically for the purpose of eliminating the factor of apprehension and discomfort on the operating table. When ready to begin have the patient sit upright across the operating table with both feet resting on a stool at the side of the table; have his back arched and leaning a little forward with the back muscles relaxed, supported or steadied by an assistant or nurse. Prepare the skin and drape the field with sterile towels. The site of puncture varies with the extent of anaesthesia required. For operations on the lower extremity, anus, perineum, external genitalia, and perineal prostatectomy, make injection between the third and fourth lumbar vertebra. For suprapubic prostatectomy, appendectomy, inguinal herniotomy, inject between the second and third lumbar vertebra. For abdominal hysterectomy, inject between the first and second lumbar vertebra. For operations on kidney, ureter, gall bladder and all opeations on the upper abdominal organs, inject between the twelfth dorsal and first lumbar vertebra. Injection between the twelfth dorsal and first lumbar gives anaesthesia to the level of the nipple line.

The next step is to make an intra-dermal wheal with two percent novocain at the selected site of puncture; then take spinal puncture needle which should be of medium gauge and length, about 1.1 m. m. thick and 80 m. m. long; it should have a short bevel, at the most about 1.5 m. m. The point should be very sharp and the needle should be rigid and flexible; it should be made of unbreakable material and should not bend too easily. The stylet should fit the lumen of the needle exactly

and smoothly and should be ground to bevel with the needle. A pin-lock at its hub keeps the stylet in its correct position. The special needle devised by Labat answers all these requirements. Make the spinal puncture through the intradermal wheal, withdraw the stylet to be sure that the spinal fluid flows freely. After this has been determined, take the ampule of neocaine, also called French novocain, which has been filed open at the neck and withdraw the stylet from the spinal puncture needle and let the spinal fluid drop into the ampule until it is filled, being careful not to spill any of the fluid. These ampules contain sterile neocaine in the dosage you desire-for example, you use the .10 gram size for a patient of average size, that is, up to 150 pounds weight, for patients over 150 pounds weight use the .12 grams size. The neocaine dissolves readily in spinal fluid; after it is completely dissolved, draw the contents of the ampule into a 10 c.c. syringe which fits your spinal needle. Attach the syringe to the spinal needle after all air has been expelled from the syringe and slowly withdraw more spinal fluid until the syringe is filled, then discharge about one-half the contents of the syringe into the subarachnoid space, now withdraw again filling the syringe, repeat this procedure three or four times and then completely empty the contents of the syringe into the subarachnoid space. Now withdraw the spinal needle and this process is completed.

Immediately place the patient flat on the table and drop the table into the Trendelenburg position making sure the head is lower than the hips. Now as soon as you can prepare your field of operation and drape your patient, you may begin your surgery, the anaesthetic effect is almost immediate and will last from one to one and one-half hours. The patient must be kept in the Trendelenburg position until the operation is completed. As soon as he is on his back he is asked to take a few deep breaths through his mouth and continue breathing naturally. It is well to have a trained assistant to sit at the head of the patient and instruct him to breathe through his mouth deeply any time he feels nauseated; also, this assistant can make the patient more comfortable by the application of cold wet sponges to the neck and forehead; he may give the patient a few sips of cold water or cracked ice all during the operation.

In transfering the patient from the op-

erating room to the bed, the stretcher should be kept in the Trendelenburg position and the bed should be already in the lowered head position and should be kept thus for three hours from the time of the injection. It is well to give the patient a cup of black coffee as soon as he has returned to bed.

During the operation the pulse may get weak and the blood pressure may drop very low, even to zero, but if the general condition looks good and the respiration is all right, there is no need of medication to change this as it will return to normal in a short time. Many men using this form of anaesthesia lay much stress on the importance of watching the blood pressure and pulse and give ephedrin, adrenalin and many other stimulants to prevent or rectify these conditions but Dr. Labat says he has never seen it necessary to give anything. In my small and limited experience with this form of anasthesia, I have never given any form of stimuli and none of my cases have shown any ill effects.

The danger in spinal anaesthesia is respiratory failure due to acute anemia of the brain. This is easily prevented by immediately placing the patient in the Trendelenburg position which, I think, is the only prophylaxis necessary.

Spinal anaesthesia is indicated in any operation below the diaphragm except in cases of gastro-intestinal perforations and localized peritonitis. In intestinal perforations, the intestinal contents would be milked out as a result of the contracted bowels and hyper-peristalsis; for the same reason localized peritonitis would be spread to the entire abdominal cavity following the destruction of protective adhesions. It is well not to use this procedure in syphilitic or epileptic patients, because of the occasional coincidence of pathologic developments inherent to their diseases which might be attributed to the anaesthesia. To illustrate, I did an appendectomy on a woman who, several days following the operation, developed some very marked mental symptoms which persisted for about two weeks. On investigation, I found that this patient was subject to these attacks and had some very similar ones several times before. After obtaining this information. I felt sure that there was no relation between the anaesthesia and the mental symptoms except that they were coincident.

Spinal anaesthesia finds an unquestionable indication in patients suffering from chronic conditions of the lungs, heart, liv-

er and kidneys, and also, in very fat people who are, as a rule, very bad subjects for an inhalation anaesthesia.

This type of anaesthesia has many advantages; the greatest one, I think, to the surgeon, is the absolute relaxation of abdominal muscles which gives him much better access to the field of operation; for pelvic operations it is ideal, no packing of the intestines is necessary as they are collapsed and entirely drawn away from the other pelvic organs and instead of having to make pressure with sponges and retractors to keep them clear of the field of operation, all we need do is to spread an open sponge across the upper end of the incision which separates the intestines from the field of operation. This, I am sure, cuts down the element of shock to a great degree.

Another great advantage is that we have very little post-operative nausea or vomiting, no gas distension, no lung or kidney complications; convalescence seems much more rapid, normal diet may be resumed much earlier, in fact, as early as the operative procedure will permit.

I have done one hundred and thirty surgical cases with this method of anaesthesia and I am certainly highly impressed with the results I have had. I have had two failures to obtain anaesthesia and in neither of these cases did I have any apparent anaesthesia. I attribute this failure to faulty + chnique. I think, that in attaching the syringe to the needle, I probably pulled the needle out of the subarachnoid space and injected my solution into the deep structures of the back. In both of these cases, we gave the patient ether and went on with the operation which is a perfectly safe procedure in any case when ether is not contra-indicated. My cases include leg amputations, herniotomies, hysterectomies, appendectomies, cholecystectomies, hemorrhoidectomies, perineal repairs, Caesarian section, etc., and the results have been gratifying in all these cases.

I might here mention two or three specific cases. One of the most interesting was a pregnant woman at full term, weighing about 350 pounds who was refered in. We found she had a blood pressure of 280 and all the symptoms of eclampsia; urine contained much albumen and many casts. We did a Caesarian section on her under spinal anaesthesia and delivered her a normal twelve pound baby. She made an uneventful recovery and rapidly returned to normal. I am sure that

this patient would have been no fit subject for inhalation anaesthesia of any type. Another case was a prostatectomy in a man 83 years of age who showed no ill effects and made an uneventful recovery: another case was a cholecystectomy in a man 76 years of age who also made an uneventful recovery in spite of the fact that he had Bright's disease and a myocarditis which were surely contra-indications to an inhalation anaesthesia. Another interesting case was a woman who had a ruptured ectopic pregnancy, at the same time having an acute bronchitis and an influenza; she also, showed no ill effects and made an uneventful recovery. These patients all seem to like this form of anaesthesia. They have absolutely no pain, very few are nauseated and many of them express themselves as being pleased that they have not taken ether. The ones who appreciate it the most are those who have previously been operated under inhalation anaesthesia.

Finally, I want to mention again the importance of getting the patient into the Trendelenburg position immediately after the injection and keep him there for three hours. This, I am sure, is the most important step in the whole procedure. This whole technique of spinal anaesthesia is simple but it must be followed very exactly, and I am sure that anyone who does this will have excellent success and very gratifying results. My opinion is that in a very few years this form of anaesthesia will be the one of choice.

INTRA-CISTERNAL TREATMENT OF NEURO-SYPHILIS—PRELIMINARY REPORT

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INTRODUCTORY

The Swift-Ellis method of intra-spinal treatment of syphilis has been fully accepted by the medical profession as beneficial in certain types of neurosyphilis. In attempting to develop a method of treatment which would reach several types of this disease, it was decided to inject arsphenamized auto-serum intracisternally, the Cisterna Magna (cerebello-medullaris) being more of an anatomical and physiological distributory center of fluid than

the spinal subarachnoid space. It has been shown that material injected into the lumbar space reaches the base of the brain only in small amounts. Intracisternal injection of the anti-meningococci serum is now considered as the best procedure in the treatment of epidemic cerebro-spinal meningitis. Intracisternal injection is a necessary procedure in making Roentgenray examinations of some of the brain and spinal cord conditions.

#### HISTORY

Puncture of the cisterna magna was first done for diagnostic, and later for therapeutic purposes. The technic has been developed principally in the last decade. Wegeforth, Ayer and Essick' described the method of obtaining cerebrospinal fluid by this procedure in 1919. Later, Ayer, his associates and students, developed the technic and demonstrated the advantage of such an approach to the cerebro-spinal circulation for various purposes. McKusker<sup>3</sup>, in 1921, reported his initial case. As stated above, in 1928, in an attempt to develop a treatment for certain types of neuro-syphilis, the intracisternal method was decided upon. After injecting the arsphenamized auto-serum, the plan was to follow each injection by an intravenous hypertonic solution which would draw this serum into the brain tissue. For reasons detailed below, saturated glucose was the hypertonic solution of choice. After having pursued the above method of treatment for some three months, perusal of the literature revealed that in 1922, Franklin G. Ebaugh of Trenton, N. J., (now director of Colorado Psychopathic Hospital of Denver) had used a somewhat similar method.

#### PLAN AND TECHNIC

In detailing the various steps of this treatment, it is well to emphasize:

- (a) The types of Neurosyphilis selected which were expected to receive benefit;
- (b) Method of preparation of the serum:
- (c) Method of performing the puncture and injecting the serum; and
- (d) The care of the patient immediately thereafter.

The Swift-Ellis intraspinal therapy is of special therapeutic value in those types of neurosyphilis showing optic atrophy and also in the various types of spinal cord involvement, and these two types

were selected to have intracisternal therapy. A third group used was those having definite neurological and mental symptoms of early neurosyphilis but whose serology of the spinal fluid was essentially The fourth type negative, continuously. was the parenchymatous cerebral type (general paralysis) which had responded well physically and mentally to other standard methods of treatment, but who after two or more years of regular systematized treatment, continued to show highly positive serological tests of the spinal fluid. In this type, it was hoped that the positive serological findings, which to us means that there is continued infection, might be altered. Since in all types of neurosyphilis, salvarsan when first given, severely aggravates the nervous and mental symptoms, no patient with neurosyphilis should be given this treatment without first having had some of the other methods of treatment, such as tryparsamide, spinal drainage, mercury, bismuth, and fever therapy.

The serum is prepared essentially by the Swift-Ellis method. The patient is given 0.9 gram of neosalvarsan intravenously by the syringe method. One hour later, 40 c. c. to 60 c. c. of whole blood is removed by aseptic methods, and placed into sterile centrifuge tubes. These are placed on ice, the clot permitted to form, centrifuged; the clear serum pipetted off, and just before using, is inactivated in a water bath for 30 minutes at 56 degrees. Later on during treatment, 0.75 to 1.0 mg. of neosalvarsan is added to the serum. On the morning of the treatment, the individual has breakfast omitted, is placed in bed and given 1-4 grain morphine and 1-150 grain atropin hypodermically. In about fifteen minutes, the patient is placed on the operating table, head slightly flexed but perfect alignment of the vertebral column is maintained. A pillow or some other suitable head rest is essential. The neck having been perfectly cleansed and shaved, is now sterilized. An assistant steadies the head, which in turn is draped with sterile towels. For the first few treatments, that is until the operator is thoroughly acquainted as to how the patient reacts to the needle prick, it is advisable to use a small amount of local skin anesthetic. Afterwards, in most cases, it is unwise to use the local anesthetic because the pain of the anesthetic needle, with the small amount of swelling of the tissues causes about as much pain as does the spinal needle of the size which should be used, and furthermore, the infiltration of the tissues may cause sufficient swelling to interfere with the regional landmarks. A number 19 needle with a mark six centimeters from the point is inserted through the skin, above the spinous process of the axis, is pushed anatomically forward and upward toward the occiput on or slightly above a line pointing toward the external auditory meatus. Aiming slightly above this line, permits the needle to enter the cistern at a point farthest from the brain stem. Should the needle point touch the occipital bone, by slight depression, the needle may be made to pass underneath the bone and enter the cistern at the foramen magnum. The cisterna lies from three to five centimeters from the skin when approached by the above method and the needle should never be deeper than six centimeters. From 25 to 75 c. c. of fluid is removed, and subsequent injection of approximately 25 c. c. of the prepared serum which has been warmed to body temperature. At the first injection, 12 c. c. of the whole serum added to 13 c. c. of warm normal saline is used, but at subsequent treatments, the whole serum is gradually increased in amount until the 25 c. c. is composed entirely of serum and the desired amount of neosalvarsan. Injection is done with a syringe, taking usually, from three to five minutes to inject the 25 c. c. of fluid. Immediately after this, 50 c. c. of saturated glucose is given intravenously. The patient is kept in bed from ten to twenty hours.

#### THEORY

The theoretical advantage of this form of treatment is now given in detail. The value of arsphenamine products lie not only in the spirocheticidal effect of the preparations, but also in the specific antibodies which they are supposed to produce by reaction with the patient's tissues. In ordinary circumstances, no arsenic reaches the cerebro-spinal fluid when neosalvarsan is injected into the blood stream. Injection into the cistern of the arsphenamized auto-serum when reinforced with some of the neosalvarsan solution, places in direct contact with the brain both the arsenical preparation and the specific antibodies. The cistern, as a center of approach, has advantages over the lumbar subarachnoid spaces, and also over the ventricles. As mentioned above, material injected into the lumbar subarachnoid spaces has been proven to reach the base

of the brain only in small amounts while being placed into the cisterna, it is already directly at the base of the brain and with the individual in a prone position spreads rapidly over the brain surface. Intracisternal injection may be performed at weekly intervals for a period of six to eight weeks, and after a few weeks' rest this can be repeated. Because of the necessity of removing bone for ventricular approach and because of the necessity of piercing brain tissue, one should hesitate before giving very many ventricular injections to the same patient.

A hypertonic solution decreases intracranial pressure by withdrawal of fluid from the subarachnoid spaces and from the adjacent nerve tissues. Intravenous injection of the hypertonic solution immediately after intracisternal injection of the serum with its arsenical and antibody content is supposed to draw into the brain tissue some of the material injected into the cisterna. Saturated glucose is the solution of choice because it is non-toxic, decreases cerebro-spinal pressure as well as any of the salt solutions and has some healing effect on inflamed nerve tissue. Glucose also supplies some nourishment to the individual. All hypertonic salt solutions, such as, magnesium sulphate, sodium chloride, etc., have been proven to be toxic.

### RESULTS

The present plan is to give the individual a treatment each week for seven weeks. In a few cases, the patients have had intervals of two or three weeks between treatments. Some patients lose weight and become weakened when given weekly intravenous injections of neosalvarsan alone. To given maximum doses of neosalvarsan, and the following day to have the treatment with breakfast omitted, in some cases, may temporarily upset the patients' physical equilibrium. (It is advisable always in treating neurosyphilis, to observe; to study; and, as much as possible, to "know" your patient.) Mercury or bismuth is given bi-weekly along with the other treatments.

While inserting the needle, no complaints by the patients, nor complications of any nature, have been experienced. Too rapid withdrawal of the fluid, has in a few cases, caused the patient to complain of dull headache, best described as a tight band around the head. This never lasted over one or two hours, has not caused the

patient any real discomfort and is not experienced if the fluid is permitted to flow of its own accord. On two occasions, in different patients, a small amount of blood came out with the fluid as long as the fluid was permitted to drain. In both of these cases, the patients experienced some headache with vomiting which lasted for two or three days. Both of these patients were ready for treatment the following week, and showed no similar complications at subsequent treatments. Evidently the needle point had penetrated the meningeal vascular plexus which overlays this part of the medula. Shortly after the injection of the serum-fluid has begun, most patients experience a warm tingling sensation, which begins about the face, neck or upper extremities, and then spreads over the entire body. No special points associated with the intravenous glucose have been noticed. Polyuria for a few hours after administration of the glucose was expected and was present in varying degrees in each case. From three to six weeks after completion of a course of these treatments, the patients variously expressed themselves as "feeling better," "less dizzy," "being able to walk better," "mind seems clearer," etc. Several expressed themselvs as not having as much headache, and having less discomfort than they did from either Swift-Ellis or simple lumbar drainage. For eighteen months, at irregular intervals, six spinal drainages were given to the patient in Case Number 11, (Table I) before intracisternal treatment was instituted. Each time the postspinal headaches had been so severe that adrenalin, intravenous hypotonic salt solutions, nor absolute rest would alleviate them very much. A cisternal drainage was tried on the patient without any headache or even slight discomfort following. He was then given weekly cisternal injections of the auto-serum without any complication.

Twenty-two patients have had a total of 119 treatments as above described. The greatest number any one patient has yet received is 10. Nine of the twenty-two; Cases Numbers 1, 4, 5, 6, 10, 17, 18, 19 and 21, have shown sufficient improvement in Wassermann tests of the spinal fluid with this small number of treatments that it seems there is a possibility of beneficial serological results being obtained by the method. Patients in cases numbers 5, 6, 10, 17, 18 and 21 are of the general paralytic group with highly positive sero-

logical tests. It was primarily this group, which stimulated the search for a method of treatment that would alter the positive serological reaction.

## SUMMARY AND CONCLUSIONS

- 1. Since this paper is a preliminary report based on six months' observation, no final conclusions are to be drawn.
- 2. Intracisternal medication is a safe procedure, but because of the proximity of the medulla, careful study of the landmarks and important structures should be studied, and some experience of performing the puncture should be obtained on the cadaver. The "feel" of a needle piercing the dura mater is important to have, and can be cultivated by doing simple lumbar punctures.
- 3. Theroetically, because of its anatomical and physiological location, the cisterna cerebello-medullaris is a better place for administering arsphenamized auto-serum than the lumbar route which is used in the Swift-Ellis method.
- 4. Following the intracisternal injection, saturated glucose intravenously should be of benefit.
- 5. By the technic described above, over a period of six months, twenty-two patients having a total of 119 punctures with intracisternal medication have offered no complaints, and no complications of any importance have been noticed.
- 6. Headaches following the punctures and treatments have been negligible, and "nil" when comparing them to the post-spinal headaches which are so frequent after simple drainages from the lumbar region.
- 7. Careful consideration of all previous treatment, and careful study of the reaction of the patient to each intracisternal treatment should be given before over 0.75 milligram of neosalvarsan solution is added to the serum.
- 8. By the one fact that some patients have complications following lumbar punctures, cisternal puncture is a procedure, helpful to any physician doing diagnostic or therapeutic neurological work.

#### CASE REPORTS

The following are five case reports which typify the various responses to the treatment:

Case No. 1. B. E. B.: Age 44, Interstitial type of neurosyphilis, with mental

symptoms of three years duration. Was given several courses, six to eight weeks each, of three grams of tryparsamide weekly, with spinal drainage on alternate weeks, and mercury or bismuth intramuscularly bi-weekly. Later on, he was given a few courses, of six to eight weeks duration of neosalvarsan weekly, and mercury, or bismuth bi-weekly. At no time did the spinal Wassermann, with 1 c. c. of fluid, show any tendency to diminish. After ten intracisternal treatments, the Wassermann reaction, with 1 c. c. of fluid, never went over 1 plus, and on two occasions showed negative. He is at home helping to support his family.

Case No. 4. J. F. D.: Age 38. Meningo-vascular syphilis of three and one-half years duration. When symptoms first started, he was given three weekly injections of neosalvarsan, and rapidly became more excited and restless, and it was necessary to commit him to the State Hospital because of his nervous and mental condition. On tryparsamide and spinal drainage, he very quickly began to respond to treatment, and for the past two and one-half years, he has been back at his former occupation. He has taken his treatment regularly, the treatment consisting of courses of six to eight weeks duration similar to that reported in Case No. 1. The cell count and globulin rapidly approached normal, but the Wassermann reaction continued highly positive. After five intracisternal treatments, the Wassermann reaction has become, and remained, negative. He successfully continues his work as insurance salesman.

Case No. 5. B. M.: Age 28. Real estate and insurance. Early general paralysis. Developed neurosyphilis in the Fall of 1924. Was placed in a private sanitarium for six weeks where he received three Swift-Ellis treatments. Showed some improvement. Was transferred to the State Hospital where he remained for three months, receiving a few irregular intravenous injections of tryparsamide and neosalvarsan.

He came under our care June, 1925; was given five courses of treatment varying from six to eight weeks, consisting of .3 grams of tryparsamide weekly, spinal drainage on alternate weeks, mercuric cyanide (12 to 20 minims) intramuscularly, with rest periods of from five to twelve weeks duration. Became much better mentally and returned to his former occupation.

His serological tests improved in every respect, except the Wassermann reaction, which remained highly positive in both blood and spinal fluid. Treatment was continued, substituting neosalvarsan (0.45 to

No.	Name	Type of Neurosyphilis	ion	nt and Nature of ous Treatment	er of nals	1 e.	Wassermann c. Fluid	Name
			Duration of Symptom	Amoun	Number of Cisternals	Before	After	lu .
1	B.E.B.	Intersititial	3 yrs.	Tryp., Sp. Drainage, Neosal., Mercury and Bismuth, (3 years).	10	4 plus	1 plus	At home; working; in good physical and mental states.
2	R.D.	Paresis (Mod. Advanced)	3 yrs.	3 yrs. of Sp. Drain- age Neosal., Mer- cury, Bismuth and Swift Ellis.	10	4 plus	3 plus	At home; at former occupation; good physical and fair mental states.
3	W.F.L.	Paresis (Mod. Advanced)	2 yrs.	2 yrs. of Sp. Drainage, Neosal., Mercury and Bismuth.	.7	4 plus	4 plus	At home; working; in fair physical and mental condition. (Spinal fluid not checked on in 8 weeks).
4	J.F.D.	Early Meningo— Vascular	3½ yrs.	3 yrs. of tryp., Sp. Drainage, Neosal; Mercury, Bismuth.	5	4 plus to 2 plus	Neg.	At home; working successfully at form er occupation; good physical and mental condition.
5	B.M.	Early Paresis	4 ½ yrs.	4 yrs. Swift Ellis, Tryp., Sp. Drainage, Neosal., Mercury and Bismuth.	4	4 plus to Neg.	Neg.	At home; working successfully at form e r occupation. Good physical and mental states.
6	B.W.	Paresis (Mod. Advanced)	2½ yrs.	2 yrs. Spinal Drain- age, tryp., Neosal., Mercury and Bis- muth, Malaria.	5	4 plus	4 plus to weakly pos.	At home on "Rest Periods" only. Con- siderable Dementia, fair physical con- dition.

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7	C. Mac.	Paresis Advanced	2 yrs.	2 yrs. of Spinal Drainage. Tryp., Neosal., Mercury and Bismuth.	7	4 plus	4 plus	Much dementia. No amelioration physical or mental symptoms except temporarily after tryp. course.
8	L.M.	Paresis Advanced	3½ yrs.	3 yrs. of Spinal Drainage, Tryp., Neosal, Mercury and Bismuth, both Malaria and Protein Fever Therapy.	9	4 plus	4 plus to weakly pos.	In Hospital, much improvement, much Dementia, but co- operates well. Par- ole Hos. Grounds.
9	M.L.	Paresis (Mod. Advanced)	2½ yrs.	2 yrs. of Sp. Drain- age, Tryp., Neosal., Mcrcury, Bismuth and Malaria.	5	4 plus	4 plús	Home; at former occupation farming. Some dementia. (Spinal fluid has not been checked on in past 8 weeks.
10	L.J.B.	Paresis Advanced	4½ yrs.	4 yrs. of Sp. Drain- age, Tryp., Neosal., Mercury, Bismuth Malarial and Pro- tein Fever.	5	4 plus	1 plus to weakly pos.	Much improved mentally and physically. Some dementia and an occasional convulsion. Parole of hospital grounds and doing carpenter work daily.
11	S.J.	Meningo- vascular. Per- haps gumma also	18. mos.	1 yr. occassional Sp. Dr., Tryp., Neosal Mercury and Bis- muth.	8	4 plus	4 plus to weakly pos.	Much improvement mentally. No phy- sical deterioration. At home doing some farm work.
12	F.P.	Paresis (Advanced)	3 yrs.	18 mos. Sp. Drainage, Tryp., Neosal., Mercury and Bismuth.	5	4 plus	4 plus	At home; much improvement mentally and physically in spite of brain destruction and dementia.
13	J.P.	Paresis (Terminal Stages)	4 yrs.	3 yrs. Sp. Drainage, Tryp., Neosal, Mer- cury and Bismuth.	3	4 plus	4 plus	Some response with tryp, and Sp. drainage at first. Later advanced in spite of all treatment. Now dead,
14	H.K.L.	Paresis (Advanced)	5 yrs.	2 yrs. Sp Drainage, Tryp., Neosal., Mer- cury and Bismuth Malaria, Swift-Ellis and Protein.	7	4 plus	4 plus	Some response mentally and phy- sically. None sero- logically. Pt. con- tinues to gradually deteriorate.
15	C.H.D.	Interstitial Cerebrospinal	1 yr.	1 yr. Protein fever. Sp. Drainage, Tryp., Neosal., Mercury and Bismuth.	7	Neg.	Neg.	Much improvement mentally. There has been little or no physical deteriora- tion. Ready to re- turn home.
16	W.H.J.	Paresis (Far Advanced)	3 yrs.	18 mos. Sp. Drain- age, Tryp., Neosal., Mercury and Bis- muth.	3	4 plus	4 plus	Badly demented and far advanced before being placed on treatment. Very mild response men- tally and physical- ly (expect no fur- ther improvement but rather rapid deterioration).
17	T.G.	Paresis (Far Advanced)	2 yrs.	18 mos. Sp. Drainage, Tryp., Neosal., Mercury and Bismuth.	7	4 plus	Neg.	Considerable dementia. Moderate response to treatment. (Fearful that condition will be rather rapid in progressing).
18	C.W.	Neurosyphilis with Paranoid reaction.	2 yrs.	Malaria and 14 mos. of Sp. Drainage, Tryp., Neosal., Mer- cury and Bismuth.	3	4 plus	4 plus to mod. pos.	Mild dementia. A fixed Paranoid reaction present. Patient in good physical condition.
19	P.R.	Paresis (Advanced)	3 yrs.	18 mos. Sp. Drain- age, Tryp., Neosal., Mercury and Bis- muth.	4	4 plus	Neg.	At home, at work. Some dementia present but in good physical and mental states.
20	G.P. (Colored)	Paresis (Advanced)	2 yrs.	2 yrs. Sp. Drainage, Tryp., Neosal., Mer- cury and Bismuth. Malarial Inocula- tion gave no chills.	ĺ	4 plus	4 plus	No response to treatment. Now dead.
21	R.B.A.	Paresis (Mod. Advanced)	3½ yrs.	2 yrs. Sp. Drainage, Tryp., Neosal., Mer- cury and Bismuth. Malaria.	3	4 plus	Neg.	At home; at work, marked improvement mentally and physically. Little dementia.
22	E.K. (Colored)	Paresis (Advanced)	2 yrs.	18 mos. Sp. Drain- age, Tryp., Neosal., and Mercury.	2	4 plus	4 plus	Now dead. Failed to respond in any way to any form of treatment.

0.9 grams) and bismuth for the tryparsamide and mercury respectively. This continued for three courses, when the blood reaction became negative, and has remained so. The spinal Wassermann varied from completely negative to 4 plus. Chronic arsenical dermatitis began to develop, and proper treatment was instituted. Six months later, spinal fluid was normal for globulin and cell count but showed a 4 plus Wassermann, while the blood Wassermann was negative. A course of neosalvarsan and bismuth was given, giving sodium thiosulphate intravenously, at the same time that the neosalvarsan was given. Spinal Wassermann continued to be 4 plus. Intracisternal treatments were given at weekly intervals, four times. Spinal fluid Wassermann has been negative the last three times it was examined. He successfully continues his work in real estate and insurance.

Case No. 9. M. L.: Farmer with moderately advanced general paralysis. 38 years of age, had symptoms of neurosyphilis for two and one-half years. Had tryparsamide and spinal drainage, mercury, bismuth, malarial fever therapy, and protein fever therapy distributed over the two and one-half years' period. Cell count, globulin and spinal fluid became normal, while the Wassermann reaction remained 4 plus. The blood Wassermann has become negative, although the spinal fluid has not been tested for now some eight weeks, since five intracisternal treatments were given. The last test made continued to show highly positive (4 plus) Wassermann reaction. Patient is at home working, shows definite mental impairment. but expects to return for further treatment.

Case No. 19. P. R.: Advanced general paralysis. Patient 36 years of age, having had mental symptoms for two and onehalf years. Responded well to tryparsamide and spinal drainage, mercury, bismuth and neosalvarsan but the spinal Wassermann was 4 plus at all times. After four cisternal injections, the Wassermann reaction became negative, and has remained so. The patient is at home working on salary, but cannot command salary he formerly did.

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## BLIND SPOTS IN PATIENTS WITH INTACRANIAL TUMORS

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Loyal Davis, Chicago (Journal A. M. A., March 9, 1929), studied 105 intracranial tumors. Of these, seventy-two were verified by microscopic sections. The remainder were known to be tumors but were unverified for one reason or another. In addition, the blind spots of fifty normal persons were plotted. Some of the latter had refractive errors, such as myopia and astigmatism, which aided in establishing the size and shape of an average normal blind spot. In the cases of tumor, the blind spots were charted and replotted several times prior to the operation before a photograph was made for the hospital records. In each instance, including those cases of pituitary tumor without the presence of increased intracranial pressure, the blind spots were definitely enlarged above those of a group of normal persons. In all but five of the patients, the tumor was attacked by a surgical procedure designed to remove it. In those instances in which an attempt at removal of the tumor was surgically unwise, a decompression was effected through the operative field. In the five cases mentioned, a primary subtemporal decompression was performed. This was done because the observations of ventriculography indicated that the tumor was surgically unapproachable. Following the operation, the blind spots were again plotted several times before the patient left the hospital, and in every case a definite decrease in size proportionate to the relief from increased intracranial pressure was found. This procedure continues to be an important part of the follow-up examination of our patients. As a result, a complete photographic record of the course of progression and regression in the size of blind spots is a part of each patient's chart. Davis concludes that in enlargement of the blind spots due to increased intracranial pressure, the layer of rods and cones is pushed laterally by the edematous optic nerve papilla. The blind spots of patients with intracranial tumors may be recorded accurrately and simply before and after operation. Records of the size of the blind spot are of greater value in determining and following the increase or decrease in papilledema than are ophthalmoscopic measurements of the height of swelling of the optic nerve heads.

## THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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## EDITORIAL

## THE OKLAHOMA STATE MEDICAL ASSOCIATION

The editor of the Journal rather frequently receives letters asking for information relative to the inception and organization of the Oklahoma State Medical Association. As is well known to most of our members, the Oklahoma State Medical Association was organized by the merging of two medical organizations, the Indian Territory and the Oklahoma Territory Medical Associations, this merging occurring after 1905. The first officers of the merged organization being Dr. B. F. Fortner, Vinita, president, and Dr. E. O. Barker, Guthrie, secretary.

Indian Territory Association was organized in Muskogee, Indian Territory. April 18, 1881. The first president, strange to say, was the same Dr. B. F. Fortner, then of Claremore, who years later became the president of the first merged Oklahoma State Medical Association. Dr. M. F. Williams was the first secretary of the Indian Territory Medical Association. There were, according to statements made by old physicians, a few meetings held after that but the organization largely lapsed until reorganization was determined upon and a meeting was held for that purpose in Muskogee, Indian Territory, June 28, 1889. Twenty-two members from various parts of the Indian Territory made up this meeting. So far as is known, all of these are now dead except four: Drs. R. L. and F. B. Fite, Oliver Bagby and G. A. McBride.

Oklahoma Territorial Medical Association was organized at Oklahoma City, May 9, 1893. The constitution of the Indian Territory Medical Association was adopted by the Oklahoma Territory physicians with two minor changes. Dr. DeLos Walker, Oklahoma City, was made president, and Dr. C. D. Arnold, Enid, was made secretary.

Both of these organizations continued to hold meetings in a regular manner until the merger occurred, since which time annual sessions have always been held.

Very good work was done by the members of these societies at a time when attendance upon meetings called for greater sacrifices, more loss of time and a great deal more inconvenience than is the case today. The writer yet recalls, as a boy, listening to some very able, impressive and earnest papers by the then best men in these territories. These older men were very earnest and for that day were strictly abreast of the times. It is significant that the leaders of the early days remained leaders until their death and some of those who were bulwarks of the profession in both territories are known and admitted as such today.

Altogether the writer has most inspiring memories of the old Indian Territory Association. Attendance upon its meetings began sporadically in medical student days and a great deal of good was gotten from them which served as great aid in the struggles of latter days. It is a matter of pride that one may look back upon these past years and recall the startling changes which occurred incident to the dissolution

of Indian government and the organization of State government in Oklahoma. Of course, many ludicrous and farcical things were observed, many really noble actions, many self-sacrificing actions were noted. Many fine things occurred in the making of Oklahoma to its present state of greatness. One thing stands out predominately, however, and that is that the medical profession at all times was abreast of, if not far ahead of, the various stages of evolution and organization through which the territories passed into the State. Some localities, in fact many localities, erected hospitals, and these were erected by individual physicians; not organizations backed by the State or powerful financial interests. As a rule, these hospitals were far ahead of the localities in which they were located. One could get his appendix removed long before he could attend any sort of an opera or enter a restaurant and order a boiled lobster or soft shelled crab. Whenever anything medical was undertaken it was based upon and constructed along the lines of modern knowledge up to that time. The Oklahoma State Medical Association and its honored predecessors, the two Territory Associations, did their share and fulfilled their function in keeping pace with modern advances and the demands of a broader knowledge as medicine expanded into its present great station.

## THE QUESTION OF FRACTURES

It was once a rather common saying that a given case was a certain doctor's "walking advertisement." This term "advertisement" was usually used either in a facetious or satirical sense. On one or more occasions the writer has had to refer to some of his own cases as walking advertisements. The explanation lies in the fact that the results were so obvious, they were so bad, that they spoke for themselves, and there was nothing to do or say about it. The end results looked bad to anybody, doctor or layman.

Some wise physician has recently suggested, and truly so, that the proper treatment of fractures was nearly impossible outside of a hospital with the added requirement that the case be in the hands of a surgeon highly versed in the treatment of fractures and profoundly grounded in the mechanistics, physiology and pathology involved. As a rule it is not the very serious fractures, such as those of the femur or other long bones near or involving joints that produce their "advertise-

ments" as much as those that are regarded rather lightly by the physician. It is paradoxical that many physicians think they can handle a Colle's fracture and they proceed to do so, but the end results in the fractures are often very bad. "Sprained" ankles, where no X-ray is made, sometimes flaunt their sardonic selves across the doctor's path as future reminders that it is easy to overlook a fracture in that site.

There is no subject that calls for so much constant study on the part of Oklahoma physicians as the subject of fractures, especially those called simple and common fractures. It has long seemed to the writer that the millennium in fractures might be reached if the mass of physicians could understand and admit to themselves that their interests are too diversified to cover the range they do, including the care of fractures, and that it would be wisdom to select or nominate in each community some one man or men who it was agreed in advance were the best qualified to handle fractures. The average man, the busy practitioner, as a rule, has no trouble whatever in understanding that a compound fracture of the femur is just a little too much of a problem to handle, so he sensibly refers that case to one who more or less specializes in such work. But every practitioner should remember that fractures sooner or later become sources of a great deal of trouble. The aid of frequent X-ray and the help of able consultation, if frequently sought, will help to lessen the liability of such troubles.

## Editorial Notes—Personal and General

Dr. A. A. WALKER, Wewoka, has returned from St. Louis where he has been taking a postgraduate course in children's diseases and obstetrics.

DR. and MRS. EUGENE RICE, Shawnee, have returned from Europe where Dr. Rice took special class work and attended clinics in London, Edinburgh and Vienna.

DR. HERMAN FAGIN, Oklahoma City, has returned from three months' post-graduate work in internal medicine at the New York Poly Clinic Hospital. He will hereafter be associated with Dr. W. W. Wells, 712 Medical Arts Building.

OKMULGEE COUNTY MEDICAL SOCIETY opened its Fall meetings October 14th, at Okmulgee, having its Surgical and Nose and Throat clinics in the morning. A skin and cancer clinic was introduced by Dr. C. P. Bondurant, Oklahoma City, in the afternoon. After a dinner Dr. Bondurant delivered an illustrated lecture on "Skin Diseases."

DR. J. P. SUDDERTH, Nowata, suffered from an attack of appendicitis recently.

DR. WADE SISLER, Tulsa, orthopedist, received painful but not serious injuries in an airplane accident near Grove, October 17. Dr. Sisler had been visiting a private club in which he is interested on Elk River and had a negro attendant with him in the plane. For some reason the negro "froze" the control. Dr. Sister was able to right the plane before landing, but not early enough to avoid the accident, which killed the negro.

STEPHENS COUNTY MEDICAL SOCIETY were the guests of Drs. B. H. Burnett, G. O. Hall and L. M. Overton at the Christian Church at the September meeting. Dr. A. L. Blesh, Oklahoma City, delivered an oration on "Surgical Diagnosis," taking mainly the abdominal organs. Dr. A. M. Young, of the State Venereal Clinic, read an interesting paper on "Venereal Diseases." The meeting was profitable and well attended.

THE SOUTHERN MEDICAL SOCIETY held their regular quarterly meeting in Ardmore, Sept. 26th. The meeting was interesting and well attended. The program consisted of an address of welcome by Mayor S. A. George; Prostatectomy, Dr. W. J. Wallace, Oklahoma City; Psychiatry, Dr. S. M. Gregory, Oklahoma City; Sinus Infections, Dr. D. S. Bettison, Dallas Texas; Benefits of the Southern Oklahoma Medical Association, Dr. A. J. Weedn, Duncan. Dr. S. M. Gregory delivered an oration on Love and Neuroses, at the night session, to which the public was invited.

MUSKOGEE COUNTY Medical Society opened its fall meetings with a banquet at the Hotel Severs, October 4th. The meeting was highly entertained by addresses from Dr. Hugh L. Dwyer, Kansas City, Missouri, who talked on the "Trends of Immunization": Dr. Ray M. Balyeat, Oklahoma City, spoke on "Anaphylaxis and Serumsickness Prevention"; Dr. R. F. Lischer, Mascoutah, Illinois, proved himself a true wit and more than worth the price of admission. His subject was "The Pen Picture of A Country Doctor." Living in southern Illinois among country people, possessed of keen powers of observation and appreciation and sympathy with the problems of the country man, Dr. Lischer evidenced the fact that he was not only a highly informed man but possessed of unusually keen wit.

The meeting was very successful, approximately 75 physicians attended.

## OTTAWA COUNTY MEDICAL NEWS

DR. W. G. CHESNUT, Commerce, has formed a partnership with Dr. J. C. Jacobs, of Miami. They have furnished a suite of six rooms in the Security Building.

DR. BAXTER W. SHELTON, St. Louis, has formed a partnership with Dr. J. T. Moon, Miami, locating at Miami September 1st. Dr. Shelton expects to limit his work to General Surgery.

DRS. HARPER, of Afton, Jacoby and Hampton, of Commerce, and Helm, Pinnell, DeArman, DeTar and Wormington, of Miami, attended the Fall Clinics in Kansas City, the first week in October.

DR. C. A. McLELLAND, who was seriously injured in an auto collision last February, has en-

tirely recovered his health, and will re-open his office in the Security Building, Miami, November 1st.

Dr. F. L. WORMINGTON was a visitor to the International Clinics, October 20th, at Detroit, going from the Kansas City Clinic to Detroit, and thence to Washington, D. C., and other Eastern cities.

THERE HAS been a rumor that a new hospital is to be built in Miami in the near future. One of the Sisterhoods of the Catholic Church is reported to be fostering the move. The project has not been definitely determined as yet.

THE NOVEMBER MEETING of the Ottawa County Medical Society will be taken up in the discussion of arrangements for the Sixth Annual Game Dinner which will be held about the middle of December. This Annual "Blowout" of the County Society has become quite famous. Guests from all over the State attend.

DRS. R. H. HARPER of Afton, F. L. Wormington, General Pinnell and M. M. DeArman, of Miami, are going on a hunting trip seeking the wily Ursus Americanus. They expect to spend the first half of November in the wilds of New Mexico in the quest of a few specimens of that genus. If they can't get bear, they will take deer, or failing that, a wild turkey, or a cotton tail will do.

## SOUTHERN MEDICAL ASSOCIATION MIAMI, FLORIDA, NOV. 19-22, 1929

When the Southern Medical Association, founded in 1906, began holding its annual conventions, the city of Miami, yet in its prenubile state, numbered in population, five hundred. During this period of scarcely a generation, Miami has metamorphosed, emerged from its chrysalis on Biscayne Bay, and now enjoys the title, Florida's metropolis, with a year round population of 150,000.

Basking in the sun of tropical United States, and blessed with the most equitable climate in North America, Miami is justly called the play ground of the nation. This claim is substantiated by the annual influx of American pleasure seekers, Greater Miami playing host to two hundred thousand each winter.

In the brief space of a few years, Miami has become nationally known as the convention city of the East, having been the convention city for the Shriners, Elks, Lions and other national fraternal organizations. Miami was chosen for these conventions because she is built to play host to vast numbers of guests, her hotel facilities being as fine as can be found in any city in the country.

Amidst tropical beauty and sunkissed seas, boating, horse and dog racing, swimming, superb golfing and fishing, polo, air rides, Jai-Alai games and Madison Square Garden entertainments are offered our guests: everything the ingenuity of man has perfected for pleasure, diversion and recreation that the tropical climate permits of, is waiting you here at the American Riviera. Greater Miami will extend welcome to you as a body and the Dade Medical Society will greet and entertain you and your families individually.

We realize the benefits this city and the local profession will derive from your favored visit. When our work is done and time for play has arrived, you'll find a brief sojourn, by air, to our neighboring foreign cities, Havana and Nassau, will be a fitting chaser to the sparkling drink of American tropics you'll imbibe with us.

Speaking for our city, the Dade County Medical Society bids each member and his family welcome, urges you to attend this twenty-third convention of the Southern Medical Association.

B. L. WHITTEN, M.D., Chairman Publicity Committee.

## THE RADIOLOGICAL SOCIETY OF NORTH AMERICA

The next meeting of the Radiological Society of North America will be held at Toronto, December 2nd to 6th, inclusive. Headquarters at the Royal York Hotel. The facilities and accomodations at this hotel are the best in the history of the Society and we expect to have a banner meeting in every way. The Scientific Program, Clinics, Scientific and Commercial Exhibits will be of the highest character and exceedingly interesting and instructive. The program will be interesting not only to the Radiologists but to the physicians practicing other medical specialities and general practice as well. A cordial invitation is extended to all physicians as well as radiologists to attend the Toronto Meeting. Secure reservations at once through Dr. W. C. Krugar or Dr. G. R. Reid, 20 College Street, Toronto, Canada. Excellent arrangements have been made to take care of the visiting ladies.

## DR. JOSEPH J. HARDY

Dr. J. J. Hardy, sixty-eight year old Poteau physician, died at his home, October 5th after an illness of more than a year.

Dr. Hardy was born February 26, 1861, in Giles county, Tennessee. He graduated from the Louisville Medical College in 1896. He came to LeFlore county soon after the completion of his education and has been a practicing physician up to the time of his death. He was married to Miss Grace Hodgens, in 1908, two daughters surviving this union.

Dr. Hardy was president of the LeFlore County Medical Society for several years. He was also a member of the Masonic Lodge.

Dr. Hardy is survived by his wife and two daughters.

Interment was in Oaklawn Cemetery.

## **TUBERCULOSIS**

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

A New Analysis of the Value and Safety of Protective Immunization with B. C. G., S. A. Petroff: American Review Tuberculosis, (Sept.) 1929.

Petroff and his associates, during the cultivation of BCG on fluid media, noted a difference in the character of the growth in some of the flasks. After many trials covering a period of six months, they dissociated two distinct types of colonies which they call "R" and "S". The "R" colony, when inoculated into guinea pigs, produced tubercles, but the tuberculous lesions had a tendency to heal. The "S" colony produced progressive tuberculosis. The non-virulent "R" colony, when cultivated on media containing anti "R" serum, could revert to the "S" type, but six to ten passages on such media were necessary to accomplish this.

The vaccine is a living attenuated culture of bovine tubercle bacilli. The author summarizes Calmette's statistics which he states are sprinkled with such grave errors as to render them of no scientific value. Many of the case reports are meagre and clinical and X-ray studies have not been made of living vaccinated infants. Very few necropsies have been done on the infants who have died. "Recent studies on the biology of the tubercle bacillis suggest strongly that the microorganism is not stable and may mutate. We believe in the evolution and mutation of all micro-organisms and for this reason are strongly against the adoption of any method of prophylactic immunization that uses a living mirco-organism. Infants that become infected with a virulent microorganism and develop a latent tuberculosis, may manifest clinical disease later in life. There is, at present, not an iota of scientific evidence to show that the same thing may not occur if we infect infants with BCG; there is accredited evidence to suggest that such a catastrophe might happen. If we must use a vaccine, we believe that one composed of dead microorganisms can accomplish as much as we can obtain with BCG.

A Report of the Study of 25,048 School Children for Tuberculosis, McCain, P. P.: Southern Medical Journal, (April) 1929.

The Extension Department of the North Carolina Sanatorium has conducted through a demonstration clinic, a study of 25,048 school children by the following method: Each child is given the intracutaneous test, 0.1 c. c. of a 1:100 dilution (0.1 mg.) of Koch's old tuberculin, this dosage being found sufficient in clinic work. Positive reactors have a contact and clinical history taken; they are given a general examination and have postero-anterior and oblique X-ray pictures of their chest made. Of the 431 children showing demonstrable tuberculosis, the outstanding fact in this survey is that 388 were of the tracheobronchial type.

Tracheobronchial tuberculosis is a primary infection occurring in children whose tissues are non-allergic, or not hypersensitive to the tubercle bacillus. The disease is characterized by a primary

focus formed largely by a proliferate process located at the periphery of the lung, and by an involvement of the pulmonary and tracheobronchial lymph nodes which drain the area of the primary focus. The diagnosis of this type of tuberculosis depends upon:

- (1) A positive tuberculin test: Those recommended for general use are the von Pirquet skin test and the Mantoux, or intracutaneous. Koch's old tuberculin is used for both.
- (2) Symptoms: Undernourishment; poor appetite, fatigue or tiring easily; a lack of energy; a tendency to nervousness; a delayed recovery from some other disease; fever.
- (3) X-ray: Although this is the only method by which tracheobronchial tuberculosis may be definitely demonstrated, X-ray evidence of tracheobronchial lesions is not sufficient for a diagnosis of active disease without a positive tuberculin test and suspicious symptoms.
- (4) Physical examination and laboratory examinations are of more real value in the discovery of other abnormal conditions which might explain the symptoms than in demonstrating the presence of a tuberculous lesion.

Opie and McPhedran state that tracheobronchial tuberculosis in children has grave significance and may serve as an index of manifest disease; also that it is evidence of prolonged exposure to open pulmonary tuberculosis. The great majority of cases are in the mildly active or latent stage, but if further massive infection from outside sources is prevented, and if proper treatment is instituted, practically all children having tracheobronchial tuberculosis, especially those over two years of age, will be arrested or entirely cured.

## EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

Peripheral Facial Paralysis in Otology (La paralysis faciale peripherique en otologie), Sargnon, A., and Bertein, P.: Arch. internat. de laryngol., 1929, xxxv, 5.

The so-called auricular facial paralyses which are of special interest to the otologist—inflammatory, operative, and zoster paralyses—are rare and often incomplete. Frequently they can be cured by appropriate treatment. As the facial nerve is a mixed nerve, the disturbances which cause asymmetry of the face are not the only ones to be corrected. Disturbances of sensation must also be treated, particularly in intrapetrous auricular paralyses which are due to lesions of a mixed nerve at a point beyond the union of the two roots and before the points at which the sensory collaterals are given off.

The disturbances of sensation may be studied in the external ear and the anterior two-thirds of the tongue on the affected side. They are difficult to study because especially in the ear, there are supplementary sensory nerves which modify the findings of examination. Disturbances of sensation, pain particularly, are especially marked in the zoster variety of paralysis. This is caused by primary infection of the ganglion of the seventh pair of cranial nerves. Inflammatory paralyses are generally caused by compression of the nerve by the congested mucous membrane. The pressure

is exerted on the second and third portions of the facial nerve because of breaks in the aqueduct of Fallopius.

Facial paralysis is caused not only by suppurative otitis media but also by congestive otitis without suppuration. However, caution must be exercised in attributing a paralysis of the facial nerve to a latent catarrh of the ear. The decision that a paralysis is of otitic origin must be based on a careful study of all the subjective and objective symptoms.

Operative paralyses also are often due to compression or contusion of the nerve. Less frequently they are caused by section. Section of the nerve is most common in gunshot injuries of the ear. Zoster paralyses quite frequently complicate infection of the geniculate ganglion. The sensory and exanthematous symptoms of the infection precede and accompany the paralysis, but may be slight and transitory. A careful search must be made for them, sometimes in other ganglia than those of the facial nerve which are affected at the same time, particularly those of the eighth pair of cranial nerves. Essential paralyses are now rare. Most cases are proved on closer examination to be formes frustes of zoster paralysis of infectious (often syphilitic) or toxic neuritis, or of discrete otomastoid catarrh. There sometimes seem due to inflammatory vascular disturbances of the bulbar nucles, the exact nature of which is as yet unknown.

The treatment of auricular facial paraylsis is particularly an otological treatment—early drainage of the infected cavities and nasopharyngeal antisepsis in otitic paralysis, and toilet and disinfection of the operative or accidental wound to eliminate all causes of compression and prevent secondary infection of the contused nerve. Electrotherapy is a useful adjuvant but should be used with prudence. Anti-syphilis treatment may be tried for diagnostic purposes. Operation should be done with caution and only in late cases. After a period of six months or more, a paralysis that is apparently final with a complete reaction of degeneration often undergoes spontaneous retrogression. In the authors' opinion, preference should be given to indirect methods which attempt to re-establish the symmetry of the face without direct action on the nerve, such as tarsorrhaphy, lifting of the commissure of the mouth, or sympathetic operations.

Unusual Cysts of the Maxilla; Cyst of Nasopalatin Duct; Cyst of the Facial Cleft Area (Fissural Cyst), Schroff, J.: Laryngoscope, 1929, xxxix, 173.

The most common cysts of the jaws are the root cyst, follicular cyst, and the multilocular cyst or adamantinoma polycysticum. These are derived from the epithelial cells of the dental anlage.

The author reports two cases of unusual types. In the first case, epithelial strands or cells rests from the nasopalatine duct in the foramen incisivum gave rise to a cyst in the median line of the maxilla which simulated a root or follicular cyst in that region.

In the second case, a cyst was formed from epithelial cell rests in the region of fusion of the upper jaw and the lateral and middle nasal processes. Such cysts are situated partly in the vestibule of the mouth, nose, and cheek. They may simulate dental cysts, but are distinguished from

the latter by the fact that they occur on bone and not in bone.

In conclusion, the author states that the usual classification of cysts of the maxilla should be amplified to include these varieties.

## Detachment of the Retina, Anklesaria, M. D.: Indian Med. Gaz., 1929, lxiv, 186.

A myopic boy, aged seventeen years, suffered a large detachment of the retina in the upper and outer quadrant of the right eye. He was at once put to bed at physical and physiological rest. Both eyes were bandaged and subconjunctival injections of saline solution, beginning with a 4 percent solution, were given in Tenon's capsule over the site of the detachment. Each succeeding injection was increased in strength until a 10 percent solution was reached. In all, about ten such injections were given. Internally, 7 gr. of urotropin twice daily and a mixture containing potassium iodide, sodium salicylate, and salines were administered.

Improvement was noticed in about a fortnight. At the end of six weeks, the patient was able to see as well as before and examination of the fundus revealed no sign of detachment. Today, several years after detachment, the patient's condition still remains normal.

## Headache from the Standpoint of the Rhinologist, Dintenfass, H.: Ann. Otol., Rhinol. & Laryngol., 1929, xxxviii, 77.

The author states that in the study of headaches of nasal origin, it is necessary to take into consideration not only the abnormal conditions of the nasal cavities but also the conditions of the nerve structures. Pain is due to trauma. One type of trauma is pressure resulting from the infringement of membrane on membrane, obstruction to the drainage of a sinus, or negative pressure, all the direct result of irritation and swelling of the membrane. The cause of nasal neuralgias is probably a toxin liberated by infecting micro-organisms.

Headaches due to intracranial conditions have definite characteristics. It is necessary to differentiate between Meckel's ganglion syndrome and gasserian ganglion infections and between pain due to impacted teeth and sinus pain. Care must be taken to determine whether pituitary disease is present.

The diagnosis of headache due to nasal disorders is aided by the use of cocaine, adrenalin, and ephedrin, and by transillumination, X-ray examination, and sinus puncture. Surgery should not be attempted unless there is reasonable certainty that it will be beneficial.

## DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Bullding, Oklahoma City

## The Etiology and Results of Treatment in Angioneurotic Edema and Urticaria, F. R. Menagh, J. A. M. A. 90:668, (March 3) 1928.

There were 260 cases studied in this series. The author, by sensitization tests, was able to discover the cause of the condition in 30 percent of the cases. Disease of the biliary tract was the etio-

logic factor in about 50 percent; while in 10 percent, these two causes were combined and in the remaining 10 percent, the cause evaded search. Transduodenal drainage was employed by the author to determine the status of the biliary tract, which in his series was the only part of the gastro-intestinal system that was related etiologically to the disease. Organisms cultured from the bile were allergically tested, and vaccines were employed therapeutically when the allergic tests were positive. Nonsurgical biliary drainage was used, with some measure of success in many of the cases. The author concludes by stressing the importance of disease of the biliary tract in the etiology of urticaria and angioneurotic edema.

## Streptococcal Pityriasis. H. Haxthausen, Lancet 2:370, 1927.

This author is able to cultivate streptococci on solid mediums, whereby one can form a good idea from the quantity of colonies of the number of streptococci in the original material, by his special method of cultivating streptococci from the skin, using 10 percent blood agar with a 1:100,-000 solution of crystal violet, which inhibits the staphylococcus and does not affect the streptococcus. He confirms by this method the opinion of Sabouraud and Adamson and others that there are dry scaling rashes, occurring mostly on the face in children, which are due to the streptococcus and do not belong to seborrhoic eczema, as most authors thought. The lesions showing laminated streaky desquamation, have been called by Sabouraud "impetigo sicca", and by Adamson "chronic impetigo." This author proposes the name "Pityriasis streptogenes", because the disease is secondary to impetigo only in a small number of cases, while the majority-classed by most people as seborrhoic eczema-occur primarily as a pityriasis and preserve this appearance in their future course. Haxthausen found that they often start from the angles of the mouth and nostrils; that they are frequently hypersensitive to light; that they are ofen easily irritated by soap, cold cream, petrolatum and hydrous wool fat and others; that they occur not only on the face but also rarely on the scalp, and on the body with a predilection for the lateral parts. The disease occurs mostly in children from 6 to 14, but also occurs frequently in adults, more often in women than men. He suggests as a treatment the application of zinc ointment with from 1 to 2 percent coal tar.

## Alternation of Diseases in Dermatology. L Brocq, Ann. de dermat. et syph., 9:1 (Jan.) 1928.

Brocq has been struck by certain cases in which cutaneous diseases alternate with visceral disorders during his many years of practice. For instance, he mentions cases in which infantile eccema disappeared while the patient had a bronchitis, and reappeared when the latter condition was cured. Also, he mentions a patient with eczema who was seen years ago and who became gravely ill with a malady diagnosed cerebral tumor. Brocq cured this patient by inducing a return of the eczema. He briefly records a number of analogous cases and analyzes them. It is impossible to say what these curious alternations signify but the knowledge that it exists may be made use of therapeutically in some instances.

Hyperthyroidism and Its Action on the Pilous System. P. Sainton, M. Maximin and H. Mamou, Bull. Soc. franc. de dermat. et syph. 35:22, 1928.

The authors state that disorders of the hair

are well known in hyperthyroidism. They present some studies of the influence of thyroid extract (in various forms) on the plumage of fowls and the fur of rabbits. The feeding and injection of thyroid preparations in hens lead to areate depigmentation and defluvium of the plumage. The same preparations lead to more diffuse decoloration and fall of hair in rabbits. The effect obtained depended upon the dose administered. Applying these results to human beings and adding thereto certain clinical experiences the authors conclude that the thyroid origin of vitiligo is a justifiable hypothesis in some cases.

Blood Picture in Purpura, N. Rosenthal, J. Lab. & Clin. Med., 13:303 (Jan.) 1928...

The author studied the blood picture in various types of blood diseases accompanied by purpura. He divides these purpuras into three main groups: (1) purpura characterized by a diminution of the blood platelets with or without alteration of their functions; (2) purpura due to some change in the function of the platelets without a diminution of their number; (3) purpura due to changes in capillaries. The blood picture in the first is diagnostic in cases of acute and chronic thrombocytopenic purpura, acute and chronic aplastic anemias and symptomatic thrombocytopenic purpura. The second group, chronic hereditary thrombasthenic purpura, is rare. The third main group is purpura due to conditions which affect the capillaries. A classification is presented as a result of a systematic study of 172 cases showing purpura as a primary or secondary symptom.

Case of Nevus Cancer of Vulva. J. Sahler, Zentralbl. f. Gynak. 51:2859 (Nov. 5) 1927.

Sahler reported two cases of cancer of the vulva—in a mother and daughter, aged 56 and 28, respectively. In the daughter, the neoplasm developed on the site of a wart excised two years previously. The tumor itself was not pigmented, but the surrounding skin was melanotically discolored. The wart had been almost black in color, but had not been examined histologically. The tumor gave the impression of a pendulous fibroma. The tumor and adjacent structures were excised and about ten weeks later the patient died with symptoms of exudative pleuritis. Metastatic nodules, of various degrees of pigmentation, were found in large numbers in the brain, the pulmonary and parietal pleurae, the heart, parietal peritoneum, great omentum, ovaries, uterus, and thoracic vertebrae. In the mother the lesion took the form of a series of nodules, varying in size from a pea to a walnut, and resembling pointed condylomas. They were broad based and nowhere showed degeneration. They were situated in the region of the perineum and on the inner side of the labia majora. They had been noticed for a year. In the last few months they had grown rapidly and caused pain in standing and sitting. The involved structures were excised into healthy tissue, and the patient is well one year latter.

## BOOK REVIEWS

Medical State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine in the Graduate School of Medicine, University of Pennsylvania. Sixth Edition, thoroughly revised. Octavo volume of 754 pages. Philadelphia and London: W. B. Saunders Company, 1929. Cloth, \$6.00 net.

History of Medicine, With Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, M.D., Lt., Colonel, Medical Corps, U. S. Army, Surgeon-General's Office, Washington, D. C. Fourth edition, revised and enlarged. Octavo of 996 pages, with 286 portraits and other illustrations. W. B. Saunders Company, Philadelphia and London, 1929. Cloth, \$12.00 net.

The Surgical Clinics of North America, (Issued serially, one number every other month). Volume 9, number 4. (Mayo Clinic Number, August, 1929) 208 pages with 72 illustrations. Per Clinic year (February, 1929 to December, 1929). Paper, \$12.00; Cloth, \$16.00. Philadelphia and London.

Among the very interesting articles in this issue are. "Dermoid Cyst of the Pancreas" by James C. Masson and Harold D. Caylor; "Neoplasm Confined to a Diverticulum of the Bladder. Report of a Case", "Method of Metastasis of Capillary Epithelioma of the Renal Pelvis" by Verne C. Hunt; "Prolonged Intravenous Administration of a Gum Acacia-citrated Blood Solution During Severe Intracranial Operations" by Alfred W. Adson and Archibald H. McIndoe; "Complications Following Surgical Procedures on the Colon" by Fred W. Rankin and George F. Eubanks, Jr.; "Certain Features of Local Anesthesia for Tonsillectomy" by Harold I. Lillie; "An Unusually Large Stone in the Gall Bladder Obstructing the Common Duct" from the Clinic of Waltman Walters; "Osteomyelitis of Femur. Sequestrectomy Through Special Type of Incision," Anemic Ulcer of Leg Treated by Pedicle Graft" by Hugh T. Jones; "Data Concerning the Use of Various Anesthetics in the Mayo Clinic in 1928, with Special Reference to Spinal Anesthesia, Acetylene and Carbon Dioxide," John S. Lundy.

There are many other interesting contributions which space forbids mention.

Minor Surgery. By Frederick B. Christopher, M.D., Associate in Surgery at Northwestern University Medical School, Chicago. With a Foreward by Allen B. Kanavel, M.D., Professor of Surgery, Northwestern University Medical School. Octavo of 694 pages with 465 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Price \$8.00 net.

Minor surgery confronts nearly every medical man regardless of his specialty and without reference to attempts to evade it. Some of the most disastrous results follow very minor infections and injuries. Many disastrous results follow the lack of appreciation on the part of the physician of the fact that the mighty oak grows from a little acorn and that devastating disease and infections often follow very minor affairs. With these facts in mind, every physician must be constantly upon his guard to render proper treatment of the case coming to his hands at the earliest possible moment. This work by Dr. Christopher covers a wide range of matter. The volume is divided into 24 chapters which contains many of the little points in technique and treatment which are not to be found even in highly standardized text books on surgery.

The Treatment of Diabetes Mellitus with Higher carbohydrate Diets, A Text book for Physicians and Patients. By William David Sansum, M.S.,

M.D., F.A.C.P., Percival Allen Gray, Ph. D., M.D., Ruth Bowden, B.S. Leather. 309 pages, price \$2.50. Harper & Brothers Publishers, New York, 1929.

The author notes that although insulin has been used as a special remedy for the treatment of diabetes, there has not been a material reduction in the death rate from the disease, since insulin has become readily available. They admit that the outlook for children is no longer necessarily fatal but that they have not developed as they should. They note that adults have shown marked increase in the development of such complications as ateriosclerosis, high blood pressure, cardiorenal disease and apoplexy and that patients have not been fully restored to a normal state of mental and physical efficiency. They believe that this unsatisfactory situation has been largely due to the use of diets which although seemingly ample, violate many apparently fundamental dietary principles. To that end the volume is a discussion of one of the most difficult problems confronting the practitioner—that is, dieting his patient according to the situation and the demand of the patient.

Tularemia. History, Pathology, Diagnosis and Treatment. By Walter M. Simpson, M.S., M.D., F.A.C.P., Director of the Diagnostic Laboratories, Miami Valley Hospital, Dayton, Ohio; formerly Senior Instructor in Pathology, University of Michigan. Cloth. 162 pages. 53 illustrations and 2 colored plates. Price \$5.00. Paul B. Hoeber, Inc., Publisher, New York, 1929.

Considering that Tularemia was first detected in 1910 by McCoy of the United States Public Health Service, in that short time it has become recognized as affecting many parts of the world. A mortality of nearly 4 percent, an aggravatingly slow convalescence, with a tendency to debility and prostration, make it a formidable infection. Many case reports of this disease have been received from Oklahoma practitioners. There are two main problems to be met in its consideration: One is instruction of the public upon its dangers and modes of infection and the other, of course, being that the physician shall be constantly upon his guard. So far as is known to the writer, this is the first published volume upon the infection.

The Challenge of Chronic Diseases. By Ernest P. Boas, M.D., Attending Physician, Montefiore Hospital for Chronic Diseases and Nicholas Michelson, M.D., Adjunct Physician, Montefiore Hospital for Chronic Diseases. Cloth, 197 pages. Price, \$2.50. MacMillan Company.

The author of this little monograph noted that within the past few years those interested in public relief work have noted with ever great insistency the disastrous effects of chronic diseases on the individual, his family and on society at large. Especially has been noted the great difficulty in placing chronic invalids in appropriate institutions. Noting that formerly diseases, such as leprosy and smallpox, destroyed millions, that at one time there were 19,000 leper houses throughout Christendom, but that now the types of diseases have changed, that illness is more prolonged thus taxing the means of the people if any sort of care is to be given the case.

This volume is calling the efforts of people everywhere to give proper care to the aged and to the chronically diseased, present their conclusions after a wide study of the problem.

Sterilization For Human Betterment. A summary of results of 6000 operations in California, 1909-1929, by E. S. Gosney, B.S., LL.B., and Paul Popenoe, D. SC. Cloth, 202 pages, price \$2.00. The MacMillian Company, New York, 1929.

Sterilization of mental defectives has been practiced to a limited extent for more than twenty years but the work has been confined to a few states, so far as the writer recalls: Indiana, California, West Virginia, Virginia, Wisconsin, New York and several other states. The first published report issued by the Indiana authorities seemed to indicate that following the practice of sterilization of mental defectives, their symptoms, as a rule, either decreased, in some cases altogether disappeared, and apparent cures were reported. This little volume is based upon study of California cases numbering several thousand. It is noted that the United States Supreme Court has recently sustained the legality of eugenic sterilization. Justice Holmes, in handing down the decision, said, "Three generations of imbeciles are enough." Obviously, it will be many years before sterilization of defectives will become generally practiced. Notwithstanding the unwillingness of State legislatures to authorize this principle, it is the duty of the medical profession and scientists to constantly point to the mounting number of mental defectives, of the increasing thousands housed in our asylums, in order that proper laws may be enacted. Of course, every safeguard should be thrown around the patient in order to give him or her benefit of the treatment if it is indicated or to protect the patient if not indicated.

The Outline of Preventive Medicine, For Medical Practitioners and Students, prepared under the auspices of the Committee on Public Health Relations, New York Academy of Medicine. Twenty-one contributors. Editoral Committee, Frederic E. Sondern, Chas. Gordon Heyd, and E. H. L. Corwin. Limp leather, 398 pages. Price \$5.00. Paul B. Hoeber, Inc., Publishers, New York, 1929.

This volume is divided into twenty-one chapters covering many subjects among which may be noted: Periodic Health Examination, General Medicine, Allergy, Aspect of Preventive Medicine, Orthopedics, Obstetrics, Gynecology, Pediatrics, Nervous and Mental Disease, Eye, Ear, Nose and Throat, Dermatology, Urology and Veneral Disease, Industrial and Occupational Disease and Self-Medication, Illegal Practice and Narcotic Drug Addiction. These chapters are each contributed by authorities along the specialties indicated. Not only to the health officer but to the general practitioner should it prove very interesting.

Interns Handbook. A Guide to Rational Drug Therapy, Clinical Procedures and Diets, by members of the Faculty of the College of Medicine, Syracuse University, under the direction of M. S. Dooley, A.B., M.D., Chairman Publication Committee. Cloth, 254 pages. Price \$3.00.

While this little volume is denominated an Intern's Handbook, it should be very useful on the desk of every physician, in the hands of all students, nurses and others requiring a ready reference to diagnosis, treatment and medication in general.

Spinal Anesthesia (Subarachnoid Radicular Conduction Block) Principles and Technique, by Charles M. Evans, M.D., Clinical Assistant, N. Y.

Post Graduate Medical School and Hospital, Lying-in Hospital of the City of New York, Assistant Surgeon N. J. Orthopedic Medical Hospital, Orange. Introduction by W. Wayne Babcock, M.D., F.A.C.S. Foreword by Charles Gordon Heyd, M.D., F.A. C.S. Forty-one illustrations, three color and one front color plate. Cloth, 203 pages. Paul B. Hoeber, Publisher, 1929. Price, \$5.50.

Spinal Anesthesia is being enthusiastically received and adopted by many surgeons throughout the world. Some of the busiest surgeons have already reported their experience in thousands of cases. Properly administered, to selected cases, it will probably be in the future the anesthetic of choice. In these cases its results are spectacular and more than gratifying to the surgeon and everyone concerned. This work enters into the subject in all its phases.

Tuberculosis and How to Combat it—A Book for the Patient, by Francis M. Pottenger, A.M., L.L.D., F.A.C.P. Second edition, 275 pages. C. V. Mosby Company, St. Louis, 1928. Cloth, \$2.00.

Doctor Pottenger is one of the great American authorities on the care of tuberculosis. For perhaps a third of a century he has maintained a large and successful institution for the care and treatment of the tuberculous. From this commanding position he speaks with authority. This volume of course is a message to the patient. Tuberculosis requires more intelligent cooperation from the patient than any other disease if control or cure is to be effected.

## ASCARIS LUMBRICOIDES FOUND IN CAVITY OF HUMAN HEART

Carl Boettiger and Jacob Werne, New York (Journal A. M. A., July 6, 1929), relate the case

of a woman who had recently been complaining of pain in the left lower portion of the chest. The patient was said to have become acutely ill the day before admission. She developed chills, fever, and the pain in the chest. There was no hemoptysis. Physical examination revealed, as significant observations, crepitant rales over both lungs, distant heart sounds of regular rhythm and elephantiasis of the right leg with ulcerations over the ankle. The temperature on admission was 100.4 F.; the pulse rate was 105, and respirations were 38. The chemical analysis of the blood was not remarkable. There were 4,100,000 red blood cells and 11,000 white blood cells, of which 67 percent were polymorphonuclears and 33 percent lymphocytes. No eosinophils were found. The urine contained a trace of albumin. Death occurred three days after admission. The clinical diagnoses were pulmonary thrombosis, chronic bronchopneumonia and elephantiasis. The autopsy revealed cardiac hypertrophy, general arteriosclerosis, pulmonary thrombosis, chronic interstitial pneumonia, passive congestion of the lungs, liver and spleen, chronic interstitial pancreatitis, elephantiasis of the right leg with superficial ulcerations and ascariasis. The immediate cause of death was pulmonary thrombosis. The interesting feature of this case was the finding of two yellowish white worms with annular markings, measuring each about 10 cm. by 5mm. in the cavity of the right ventricle. The first was found in the chicken fat clot in the cavity of the right ventricle, and the other was found to extend partly into the pul-monary artery. In view of the clinical diagnosis of pulmonary thrombosis, incision had been made into the right ventricle and pulmonary artery before the removal of the viscera en masse. No adult forms of the parasite were found in the intestine, which is the normal habitat of the mature worm. The worms were identified as forms of Ascaris lumbricoides.

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## THE INFLUENCE OF DIET IN SKIN DISEASES\*

C. L. BRUNDAGE, M.D. OKLAHOMA CITY

Our meager knowledge of nutrition is appreciated by all physicians, perhaps more so because we realize that diet is the most important therapeutic aid to prevent and combat disease. In recent years the information obtained by investigation in physiology and biological chemistry, as well as food experiments on the lower animals, has shed considerable light on the requirements of nutrition, thereby enabling us to prescribe a diet more on the basis of reasoning rather than following custom and tradition.

There is no doubt that the majority of cutaneous disorders are greatly influenced by diet, and depend upon the state of the alimentary canal for their development and maintenance.

However, it must be borne in mind that we can only lay down certain general principles in this connection, because different people vary so much in their susceptibilities. One individual cannot eat pork without an outbreak of hives; another will have a scarlatiniform eruption after eating strawberries; a third suffers with pruritus after the ingestion of coffee or tea, and more recently synthetic gin has been a frequent offender.

The adequate diet is fairly complex chemically, and it is necessary to consider the diet as a whole and not advocate a diet based on one or two nutrient principles, especially if the diet is to be prescribed for any lengthy period.

We can prevent ourselves from falling victims to dietetic fads and satisfy our own hobbies, if we will keep the basic requirements of nutrition in mind. For individual cases it is well to consider the general requirements of a normal diet.

Practically all of the rules necessary are outlined by Taylor, as follows:

- (a) The maintenance of nitrogenous equilibrium.
- (b) Energy bearing foods sufficient to maintain the caloric equilibrium under the individual's conditions of life.
- (c) Certain fresh or raw foods.
- (d) A certain percent of vegetable fiber.
- (e) Various salts needed by the body.
- (f) Certain flavoring materials that stimulate the secretion of gastric juice.
- (g) Reasonable demands of taste and bulk.

In the aggregate, by far the most important effects of faulty nutrition are the results of errors of one kind or another, which has gradually undermined the general health.

It is one of the causes of inferiority of physical development, fatigue, instability of the nervous system, lack of endurance and resistance to infections, particularly tuberculosis and tuberculoid eruptions, where specific immunity is not easily developed by the body.

There are certain morbid conditions which call for dietetic aid, that are encountered coincidently with the dermatoses we are called upon to treat. Quite often the adjustment of the diet is indicated for the morbid state present rather than the disease of the skin. Among these conditions are anemia, anaphylaxis, acidosis, constipation, obesity, fatigue, hypertension and hypotension.

The proper amount of consideration should be given to the individual's age, physical condition, occupation, habits of life, season of the year, as well as the patient's likes and dislikes.

In infancy and childhood, most cases of eczema respond to a reduction of carbohydrates and fats. In older individuals,

<sup>\*</sup>Preared for Medical Section. Annual Meeting Oklahoma State Medical Association, May, 1929. Oklahoma City.

there is usually a constant improvement after the limitation of the nitrogenous food in the diet.

For convenience, I have classified foods in seven groups:

- 1. Those to avoid when in doubt:
  - a. Alcohol.
  - b. Tea, coffee and cocoa.
  - c. Fried food.
  - d. Spices and highly seasoned dishes.
  - e. Rich pastries.

We know that the above named foods have various influences, many of a reflex nature on cutaneous lesions. Foods which are gratifying to the palate are frequently partaken of to excess and produce flatulence, ptosis and indigestion.

2. Those that will produce a disorder of the skin as, acute urticaria, angioneurotic edema, eczema, pruritus and many forms of toxic erythema in allergic individuals.

In infants the most common allergic foods are cow's milk, eggs, oatmeal, wheat, rice, and tomatoes. In adults the usual sensitizing foods are shell fish, fruits, particularly strawberries, nuts, pork, buckwheat and tomatoes.

When a common food is the sensitizing agent, the cutaneous eruption is chronic in type and more acute and of short duration if the offending food is uncommon in the diet. Many individuals who are sensitive to certain foods, and react positively by cutaneous tests will not receive beneficial results by removal of the sensitizing agent from the diet. Good examples are tuna fish and cheese.

Duke explains this anomaly by the sensitiveness occurring to the combination of several foods, and often digestive or putrifactive changes common to several foods.

In my limited experience the cutaneous food tests have revealed the etiological factor in a much smaller percentage of cases of infantile eczema than that reported by many investigators.

I believe that an excess of fat or carbohydrates in the diet is more frequently the cause, rather than sensitizing foods.

In eczema in adults, the value of the cutaneous food test has been almost nil.

Lichen urticatus, which resembles eczema more than urticaria, is regarded as

an allergic disorder. The sensitizing foods are usually listed as eggs, tomatoes, sea food, cheese, nuts, pork, and etc.

These cases are very common in Philadelphia, but, up to the present time, I have never seen one in Oklahoma. If my observation is correct, there must be some other factors to consider.

3. Skin diseases provoked or maintained by an excess of carbohydrates.

The literature discloses many contradictory reports of the blood sugar determinations in many dermatoses. However, all agree on the high sugar content of the blood and beneficial results obtained from a low carbohydrate diet in all cutaneous manifestations of diabetes, as: pruritus, carbuncles, furuncles, eczematoid eruption and xanthoma.

Highman and others reported a hyperglycemia in a majority of cases and sycosis vulgaris, seborrheic dermatitis, and acne vulgarus, the indurated type invaribly high.

Folin showed that thirty minutes after the injection of dextrose into guinea pigs, the skin contained almost as much sugar as the blood.

Usher and others have shown that human sweat is an excellent culture media for certain bacteria, particularly certain types of fungi. It has been further shown that bacterial growth in sweat varies directly with its sugar content. It is believed possible with certain individuals with a disturbed carbohydrate metabolism, pathogenic organisms, normally present on the skin surface become activated and exert effects. These investigations substantiate Darier's views of the etiology of acne vulgaris and seborrhea.

The etiologic factors, according to Darier, are sexual development and errors in diet, in which excessive carbohydrates, stimulants, mastication and constipation all play a part.

He believes that the acne bacillus which he always found in acne vulgaris lesions, and the microbacillus of Unna which were invariably found in seborrheic lesions, owe their activity and pathological effect mainly to the soil which is probably dependent on excessive carbohydrate ingestion or possibly the low carbohydrate tolerance of the individual.

Sutton reported gratifying results with liver extract in chronic furunculosis and acne vulgaris, particularly the deep seated lesions of the indurated type.

Warthin noted benefit from liver feeding in chronic pyogenic disorders of the skin. Blotner and Murphy investigated the effect of liver feeding on the blood sugar in 19 cases of diabetes. Their findings suggest a sugar reducing substance in liver similar to the effect of insulin on the blood.

Relapses of eruption of a seborrheic background following the ingestion of excessive amounts of carbohydrates are too frequent to be a coincidence.

To quote Schamberg, such symptoms as, a frequent headache, "lack of pep," a tired feeling in the morning, floating specks before the eyes and cold hands and feet, suggest starch intolerance and when accompaning a complaint of "itching," make the diagnosis of autointoxication tenable.

4. Dermatoses produced or maintained by an excess of nitrogen intake.

Eczema has been frequently observed to be associated with gout and an excess of uric acid in the blood. Whether the excess of uric acid in the blood is the cause or the result of eczema and pruritus, has not been definitely determined.

Wise believes that the uric acid content of the tissues is increased and osmotic changes produce the redness, swelling and exudations. Several years ago, Schamberg and Brown published the uric acid determinations of the blood in 161 cases of eczema and 10 cases of pruritus; the uric acid content was above 3.7 mg. per 100 c.c. of blood, in 44 percent of the former and 50 percent of the latter.

In 1928, I studied the case records of several hundred cases of true eczema and severe or persistent pruritus in the private practice of Doctors Schamberg and Wright, of Philadelphia. The uric acid and urea determinations of the blood were above normal in 44 percent and 51 percent respectively of the cases studied.

I had the pleasure to observe the marked improvement in the general health as well as the disappearance of the cutaneous disorder in many of these cases, in which a diet was prescribed, avoiding red meats, internal organs and sweets, in conjunction with the usual therapeutic methods. The uric acid and urea were diminished in 72 percent of the cases.

There is little doubt concerning the value of the reduction of nitrogenous foods

in the treatment of psoriasis. Shamberg and his associates found an excessive nitrogen retention in the blood, secretions, excretions and scales.

An old inveterate case of psoriasis in a man about fourty-five years of age, for seven years had been resistant to all methods of treatment as: irradiation, arsenic, chrysarobin, sodium salicylate, and etc., was placed in the hospital on a very low protein diet, consisting of five grams of nitrogen a day.

There was pronounced improvement in ten days and the eruption had practically disappeared at the end of the third week.

I do not think it advisable to restrict the diet so rigidly in most cases. Most all agree to the value of a diet in which all flesh food is eliminated, a restriction of other animal foods, nuts, and vegetables that have a relatively high nitrogen content, such as peas and beans, in the treatment of acute psoriasis. In acute stages, frequently chrysarobin, arsenic, X-ray or the ultra-violet rays will provoke a dermatitis which becomes the seat of a spreading psoriatic eruption.

In the acute stages of eczema and dermatitis, exfoliative, a low protein diet has been found to be distinctly beneficial.

5. Dermatoses influenced by an increased acidity of the blood.

There is considerable clinical evidence to suggest that all patients with eczema, seborrheic dermatitis and furunculosis, are suffering from a relative acidosis.

Fred Wise believes that the seborrheic state results from a diminution of the intake in their food of the fixed bases, that is the monosodium and disodium phosphates and carbonates, which are normally present in fresh fruits and vegetables, that are largely responsible for the maintenance of an exact alkaline acid equilibrium in the blood and tissue fluids.

6. Skin diseases due directly or indirectly to the action of foods on the sympathetic nervous system.

Acne, rosacea is frequently associated with dvspepsia and flatulency, although not directly due to any one fault in the diet.

A great variety of influences, many of a reflex nature, are associated with it. These reflexes may be brought about directly through the action of stimulants or indirectly as a result of intestinal indigestion from excessive starchy food. Rosacea is like psoriasis and eczema, in that no matter how little we may attach to the importance of diet as to cause, we must acknowledge the effect of regulation of the diet.

7. Skin disorders produced and maintained by a deficiency in the diet.

Pellagra is a good example, as it has been proven by Goldberger and others to be a purely vitamin deficiency disease due to an insufficient amount of fresh animal protein food.

The lack of resistance to infectious dermatoses as: impetigo, trichophytosis, sycosis vulgaris, may be caused by a vitamin deficiency, as experience of investigators of nutrition has been that their experimental animals on vitamin deficiency diets are far more likely to suffer from infections than are normally fed animals.

Possibly some of the cutaneous diseases of obscure origin, which are extremely serious, but fortunately rare, such as pemphigus, acute disseminating lupus erythematosis and pityriasis rubra, will eventually be proven to be due to some deficiency in the diet.

At present, nourishing foods and stimulants are considered the most valuable therapeutic means at our command to sustain life in most all serious affections of the skin.

### CONCLUSIONS

- 1. In making adjustments of the diet, the essentials of nutrition must be remembered and the patient be considered, as well as the disease.
- 2. From a practical viewpoint, cutaneous food tests are of some value as removal of the food giving the positive cutaneous test may eradicate or cause improvement of the skin disorder.
- 3. An excess of carbohydrates particularly in individuals with a lowered carcosis vulgaris, may be caused by a vitamins in the diet, are two important etiologic factors in the production of an increased susceptibility to infections of the skin.
- 4. An animal free diet is indicated in the acute stages of psoriasis, eczema and exfoliative dermatitis. Old inveterate cases of psoriasis will respond to a very low nitrogen diet, when all other methods have failed.
- 5. Frequently, it is confusing to attempt to reconcile the theories of metabolism to the needs of the individual, How-

ever, in adjusting the diet in most dermatoses, especially the acute stage, much comfort may be found in the three simple rules of Brocq: eat sparingly; eat slowly; rest after meals.

# THE DIAGNOSIS AND TREATMENT OF URETERAL CALCULUS

HENRY S. BROWNE, M.D. TULSA

Since the advent of the X-ray and the cystoscope, remarkable strides have been made in the diagnosis and treatment of stones in the ureter. Previously, the diagnosis had to be made on the symptoms and physical findings alone and the treatment was an exploratory operation, with the hope of finding a calculus somewhere along the course of the ureter which was as often as not, not present. With the advent of the X-ray, many shadows, such as calcified glands and phleboliths were often mistaken for stones and the patient subjected to an unnecessary operation. Now, the combination of the X-ray and the cystoscope with ureteral catheterization and urography, has made the diagnosis almost an exact science. Then, through the work pioneered by Cromwell, Young, Kretschmer, Beer, Caulk, Walther and many others, brilliant results have been obtained in the non-operative removal of ureteral calculi so that now operation is the exception where previously it was the rule.

## SYMPTOMS

A typical ureteral colic consists of a sudden, acute, violent, agonizing pain in the groin of the affected side which radiates down into the genitals or down the thigh. Red blood cells and often pus cells are found in the urine. All cases do not by any means present typical symptoms. Pain is by far the most consistent one and in the majority of cases it is colicky and radiating. It can be slight only, however, and dull aching in character. Frequency of urination is common and blood and pus cells in the urine also. There may be burning, urgency, and dysuria. Repeated examination of the urine reveals information of great value and may be the means of preventing an unnecessary abdominal operation. In severe attacks of ureteral colic, as in renal or gall-bladder colic, reflex nausea and vomiting are common symptoms. With renal infection and an impacted stone, there are often chills, high fever and prostration.

#### DIAGNOSIS

With the number of abdominal lesions which give symptoms of a colicky nature, it is of the greatest importance that renal and ureteral stones are not overlooked. Ample statistics prove that in these cases. approximately thirty percent have had a previous abdominal operation without relief. The appendix, of course, is first in the role of mistaken diagnoses, next, the female pelvic organs, then the gall-bladder. Right sided pain is particularly liable to a wrong interpretation. It is here that routine urinalysis is of the greatest value, for the finding of blood or pus or both in the urine must cause the surgeon to rule out the urinary tract before opening the abdomen. In the exact diagnosis of calculi, the X-ray and the cystoscope stand preeminent. The former will show about ninety percent of all stones, their size, number, shape and location. Ureteral catheterization and urography will eliminate such sources of error as calcified glands and phleboliths and will ascertain whether the stone is impacted, if the kidney is infected. its functional value and the amount of dilatation above the stone. Urography will aid in the diagnosis of soft stones which do not show on the plain plate. The X-ray plate should take in the whole genito-urinary tract, care being taken to include the symphysis pubis, as eighty percent of all stones are found in the lower third of the ureter.

## TREATMENT

A great many patients pass ureteral calculi spontaneously, many without ever seeing a physician. Those stones which do not pass and which remain stationary in the ureter are much more liable to cause damage to the kidney than are renal stones. With a patient in an acute attack of ureteral colic, the first thing is to give him relief from the agonizing pain by hypodermics of morphine. Having obtained this relief, the thing that must be considered above all is whether the kidney will be damaged if the stone is not removed promptly. With a calculus impacted in the ureter, and uninfected urine, it is safe to attempt removal by cystoscopic manipulations. With a stone and infected urine, provided there is good drainage, the same process may be carried out, at the same time making frequent checks of the kidney function. With an impacted calculus and infected urine and complete blockage, with chills, and fever, if prompt results are not obtained by manipulation, operation must

be resorted to without delay. Of course, the size of the stone has a great deal to do with its passage through the ureter. A small stone, under .3 cm. in diameter, will usually pass of itself or after simply passing a catheter by it up the ureter. A moderate sized stone, from .3 to .8 cm. in diameter, is usually passed following manipulation. A large calculus above .8 cm. in diameter. is often passed after cystoscopic treatment but it is more liable to require operative removal. Any stone that is firmly impacted and cannot be moved will require surgery. A calculus in the upper ureter can often be pushed back into the pelvis and drainage re-established, or a catheter can be passed by it into the kidney and allowed to remain several days to give drainage. The patient's general condition will improve greatly and the kidney may come back remarkably so that at operation it can be saved where several days previously removal would have appeared necessary. No stone should be removed by the knife until an attempt has been made to. remove it cystoscopically. Urologists are confirmed optimists in this matter for they have seen too many large stones passed following manipulation. When calculi are multiple, an open operation will probably have to be done. Stones in the upper ureter are much more difficult to remove than those in the lower ureter by cystoscopic treatment. In the latter, under favorable conditions, this should be tried repeatedly before resorting to operation. Some patients react poorly to treatment and the passing of a catheter will cause a flare-up of an old kidney infection. In such cases, of course, surgery is indicated. Gradual dilation of the ureter up to 15 French and more, leaving one or more catheters in the ureter for a day or longer, the injection of glycerin, oil, or a local anesthetic, Walther's bougies, Howard's corkscrew bougie, Dourmashkin's bag and slitting the ureteral orifice with scissors or by fulguration are some of the methods used in non-operative treatment. Main reliance is placed on ureteral dilation with large bougies, using other methods as they seem indicated.

### RESULTS

In reviewing forty-five cases seen in the past three years, it was found that in nine cases no treatment was instituted or treatment was stopped and the patient lost track of. In three, the stone was passed spontaneously and in three other cases it was pushed back into the pelvis and reconverted into a renal stone. Of the remaining

thirty cases, in twenty-six the stone was passed after various cystoscopic manipulations, and five required operative removal. In one case, one calculus was removed from one ureter by operation and one from the other by dilation which accounts for the apparent discrepancy in these figures. There were thus thirty-one stones, of which twenty-six or 84.9 percent were removed without operation, and five, or 16.1 percent required operation. In all of the surgical cases, the calculus measured one cm. in diameter or more. One stone, impacted in the upper ureter, required nephrectomy for pyonephrosis in addition. In eight cases, there was infection and in six, this cleared up after removal of the stone and in the other two it was greatly improved. One treatment alone was required in the majority of the cases but in a number many were given, the longest requiring eight months before the stone was finally passed. As long as the kidney appeared to be functioning well, cystoscopic treatments were given repeatedly, with the above results.

## URINARY INCONTINENCE AND ITS SURGICAL FREATMENT\*

BASIL A. HAYES, M.D., F.A.C.S. OKLAHOMA CITY

By urinary incontinence I mean uncontrollable escape of urine from the bladder due to an inability of the sphincter muscles to hold it back. Other causes may lead to an escape of urine without the consent or knowledge of the patient, as extreme exhaustion, diseases of the nervous system, ulcers in the bladder neck, overdistention of the bladder, etc. In each of these conditions, there is nothing wrong with the musculature of the bladder per se, and the patient is entirely continent provided he becomes otherwise well. Such conditions bring up a wide field for discussion and are not pertinent to the problem I am discussing; viz., what to do when the bladder muscles themselves cannot act because of faulty development or injury.

The ordinary conception of vesical sphincters is that there are two circular bands of muscle entirely surrounding the urethra—one at the bladder neck called the internal urethra and composed of an increase of the fibers making up the circular layer in the bladder wall, the other be-

tween the two layers of the urogenital diaphragm called the external sphincter. This is approximately correct so far as the external sphincter is concerned. It is entirely surrounding the urethra, is composed of striped muscle, is voluntary in action and apparently has no other function than to keep the urethra closed. The internal sphincter, on the other hand, is not in reality circular at all, and is not a part of the circular layer of the bladder wall, but is in large part composed of longitudinal fibers running forward from the deepest part of the base of the bladder to the prostatic capsule anteriorly. This arrangement creates a constriction of the mucosa at a point where the trigone merges into the prostatic urethra. It constricts not so much from side to side, as from top to bottom, or front to back, and depends for its effectiveness largely on the tonicity of the longitudinal fibers just described. These fibers, together with the entire trigone, are supported and held in place by the general pelvic floor—of which the levator ani and transversus perinei muscles constitute an essential part. Weakening of this floor from any cause will allow a sagging of the trigone and a consequent interference with the tonicity of the internal sphincter.

So much for the sphincters, or closing mechanism. There is another important muscle, lying on the inside of the bladder just beneath the trigonal mucosa. which constitutes the opening mechanism. It is known as the trigonal muscle, and is a triangular sheet of muscle, whose fibres arise near each ureteral orifice and converge downward to form a single thick muscular bundle which goes through the loop of internal sphincter and runs down the prostatic urethra a little way, being inserted near the verumontanum. Contraction of this muscle pulls open the internal sphincter and allows the escape of bladder contents into the prostatic urethra. It is innervated by sympathetic branches coming through the hypogastric nerves and is under voluntary control. It develops differently and acts entirely independent of the muscles in the bladder wall.

The manner in which these opposing mechanisms work is very interesting and must be understood in order to work out an intelligent rationale of treatment for cases in which they fail to operate properly. Young and Macht have worked it out as follows: Normally the internal sphincter is in a constant state of tonic contraction opposing the tonus of the muscular

<sup>\*</sup>Read before Surgical Section, Annual Meeting, Oklahoma State Medical Association, May, 1929.

bladder wall, which for convenience they call the detrusor. When the bladder fills, the elastic detrusor tends to force its contents out, but the internal sphincter is so strong that it cannot be overcome by such a force, not even with the help of the abdominal muscles. No amount of straining will ordinarily force this opening apart. It is reinforced by the voluntary fibers of the external sphincter, and in times of great stress is further reinforced by voluntary contraction of the levator ani, as any one can prove for himself by allowing his bladder to become overdistended and then standing near some running water. The only way the sphincter can be opened is for the trigonal muscle to contract and pull open, which is what is done in normal micturition. This has been definitely proved under vision, and I nave verified it. Incidentally at the same time there is a relaxation of the levator ani muscles and a lowering of the bladder floor rendering it easier for the trigonal muscle to pull down the lower segment of the internal sphincter. If these muscles do not relax it is almost impossible for urination to proceed—which again any one may prove for himself.

True incontinence, or inability of the bladder to retain urine, can only occur because of two types of lesions:

- 1. Lesions which cause a constant contraction of the trigonal muscle.
- 2. Lesions which cause an inability of the sphincters to remain closed.

The first type virtually may be said not to exist. The nearest approach to it is seen in those cases where there is pathology within the bladder which irritates so greatly that the trigone goes into spasm on the slightest accumulation of urine. Tuberculous ulcers in the region of the trigone, stones accompanied by marked infection of the bladder, chemical irritation of the mucosa about the bladder neck, paradoxical incontinence following marked overdistention, irritation of foreign bodies, clots, etc., are all examples which cause this type of incontinence for a time. In every instance, of course, the muscle is responding merely to a reflex irritant, and when this irritant is removed the spasm will cease. Even in these cases the incontinence is never absolute, because the external sphincter and levator ani muscles are still present and can act voluntarily to control urination to a certain extent.

The second type of incontinence, where the sphincters cannot remain closed is commonly seen due to six principal causes:

- 1. Nerve lesions causing loss of muscular contractility.
- 2. Ulceration of bladder neck causing loss of tissue so that the walls cannot come into apposition.
- 3. Stiffening of bladder neck due to enlarging prostate or inflammatory infiltration.
- 4. Sagging of bladder floor, causing loss of muscular tone in the sphincters.
- 5. Trauma, especially postoperative, following prostatectomy.
- 6. Congenital, as in epispadias.

Nerve lesions causing incontinence are most commonly those due to cord injury or systemic diseases which are amenable to medical rather than surgical treatment. Their discussion is not intended in this paper.

Ulceration with loss of tissue is very uncommon, and is more likely to result from tuberculosis than anything else. It can result from malignancy, chemical sloughing, extravasation, etc.

Stiffening of the bladder neck is very common, and forms a part of virtually every prostatic syndrome. It is this which causes the phenomenon known as dribbling, where the urine leaks out slowly without the patient being aware of it. The internal sphincter is thrown completely out of function, because the prostatic lobes grow up between its fibers and stretch them apart or catch them and hold them so that they cannot act. Meantime, the trigonal muscle, due to its constant attempt to pull open a loop which has lost its elasticity, becomes hypertrophied and stands up as a solid ridge in the floor of the bladder. Inflammatory infiltration will cause a similar stiffening in cases of stricture or extravasation. Sometimes it is seen following overinstrumentation.

Sagging of the bladder floor, causing loss of muscular tone in the sphincters is very common in women following lacerations due to child birth. Even in many cases where there is not an actual cystocele the patient notices that there is slight leakage of urine at times. I have had such cases show up in patients who were kept in bed over long periods of time; and I have no doubt that a careful inquiry would reveal that a large percentage of women past fifty who have borne children would admit that their urinary control was weak. In men also, who have led a sedentary

life or who have had rectal pathology impairing the strength of levator ani muscles I have seen a few cases of this same trouble.

Trauma is a very potent and frequent cause of incontinence. Especially it is seen in cases of instrumentation for stricture. I have seen one case following cautery punch. This is one of the reasons why the perineal method of removing prostates lost its popularity. It was followed by incontinence in a large number of cases, especially in cases operated upon by inexperienced surgeons who completely destroyed the external sphincter and pushed the levator ani muscles aside so that the bladder floor was left without support. The skilled operator avoids these errors, and today leaves his patients with good control in virtually every case.

Congenital incontinence is almost always present in cases of epispadias. These poor children are ostracised from society and for the most part grow up without education or social advantages. In such cases there is a failure of union anteriorly between the two sides of the urethra and supporting structures, leaving a widely dilated bladder neck with only a membranous or fibrous wall in front, and no attachment of the basal sphincteric fibers to the anterior prostatic capsule. In many instances, the pubic symphisis is widely separated and there is no urethra beyond the skin of the abdominal wall.

The treatment of these various types of incontinence resolve itself into a very simple matter when one considers the anatomical principles involved. All of the cases included under type 1 can be cured by relieving the causative lesion as for instance removing a stone or foreign body. curing the ulcer, alleviating the irritation, or draining the overdistended bladder until its normal function is restored. Likewise, the cases 1, 2, and 3 of type 2 must be treated by removing the cause, such as treating the neurological lesion, removing the enlarged prostate, treating the inflamed area by rest and drainage, diverting the urinary stream temporarily and healing the ulcerated area in the bladder neck, etc. Some of these things are easy and some are not. Every case must be handled according to its needs, but in general it may be said that omitting tuberculosis, malignancy, and permanent nerve lesion, they can all be cured. When they are cured and we have healthy tissues to deal with, then we can proceed with reconstructive surgery along the lines outlined in this paper.

The problem in virtually every case will then resolve itself into the same one; viz: to reconstruct a sphincter which will hold the floor of the internal urinary meatus constantly against the roof when the trigone is not contracting. The trigonal muscle is almost always there either in whole or in part. It is wholly there and fully functioning in epispadias. It is seldom or never injured in prostate operations. It is always present in the sagging floor cases and the extravasation and trauma cases. It is practically never wholly destroyed by ulcerations. Even if it is, the detrusor will overcome a weak sphincter. Therefore the opening mechanism is protected by nature and stands ready to help us. All we have to do surgically is to reconstruct a closing mechanism that will half way function and we have accomplished the purpose.

Here again nature has pointed the way. All those operations based upon removing a portion of the roof or anterior wall and thereby tightening the internal meatus are ignoring the vital principle shown in the first part of this paper that the floor is the movable portion of the sphincter. The roof is intended to remain fixed. It is buttressed by heavy fibrous tissue running between it and the symphysis pubis and the anterior abdominal wall layers, and remains fixed. The floor is pushed up against it first by its own longitudinal fibers, and second by the lift of the levator ani muscles. Therefore, when its own sphincteric fibres become insufficient to maintain good closure, the logical thing to do is to strengthen the lift of the pelvic floor through the levators, thereby lifting the lower segment of the internal sphincter against the upper segment and maintaining it there unless pulled downward by contraction of the trigone or forced downward by hydrostatic pressure from contracting detrusor muscle.

Such an operation is simplicity itself, and consists merely of doing a careful perineorraphy, by bringing the levator ani muscles together in the midline, and suturing them together along with any other supporting tissues that may be used. It was first suggested by Keyes of New York, who reported three years ago that he had done this in a man who was incontinent following perineal prostatectomy. Keyes sutured the posterior end of the bulb to the levators, thinking that in this manner he could prevent adhesions between rectum and urethra and allow the external sphincter to function. Apparently he did not consider it applicable to anything except incontinence following perineal prostatectomy. It happened that at the time this report came out I was struggling with a similar case. I tried it and it worked beautifully. I also supposed that the result was due to releasing the external sphincter from adhesions, and continued to have this idea until I found that it worked equally well in congenital incontinence. Since there were no adhesions about the urethra in these cases, I had to revise my ideas as to why it helped and began to study the matter out, finally arriving at the explanation which I here present. I have since used this same operation in two other cases, one of epispadias and one of incontinence following prostatectomy, with like favorable results in all. Report of cases is as follows:

#### CASE REPORTS

Case No. 1—C. L. C., aged 81, admitted to hospital June 17, 1925, suffering from hypertrophied prostate. Owing to his advanced age and feeble condition he was not operated upon suprapubically, but was turned to me for perineal prostatectomy, which I did August 17, 1925. He healed slowly and without mishap, except that he was totally incontinent. He remained in the hospital until March 23, 1926, with improvement in this particular. I had tried massage of the prostatic bed in the hope of softening up scar tissue but could see no difference. On March 23rd, he was operated upon by the Keyes method of bringing the levators together and suturing them to the posterior end of the bulb. This was done under local infiltration. Five days later he noticed that he could hold his urine for two hours without dribbling. Then it would overflow suddenly. I concluded that the sudden spasm was due to bladder irritability, and began stretching up the bladder by injections of sterile water, as at this time it had only 2 1-2 ounces capacity. The length of time between urinations improved daily until when his bladder held the normal amount, he could go all night without trouble and could start, stop, or hold his urine in the daytime as well as anyone.

Case No. 2—H. S., aged 74. Operated upon for hypertrophied prostate by the perineal method April 26, 1928. Healed unusually fast and was dismissed May 15th. In excellent condition except for the fact that he would dribble urine when he coughed or sneezed or otherwise strained. He remained at home until October 24, 1928, at which time he returned to the hospital for something to be done about the

dribbling. It had improved slightly, but was still troublesome enough that he did not like to attend social events, church, etc. The next day I did the Keyes operation on him under local anesthesia. He healed uneventfully, and was discharged November 4, 1928, entirely continent. I saw him several times afterward, and know that he had no further trouble.

Case No. 3—Leo A., aged 15, a case of complete epispadias, incontinent since birth. Was admitted August 7, 1926, on the service of Dr. C. B. Taylor. On August 25th, a suprapubic drain and plastic opertion on the penis was done, with good results, but no change in urinary control. Was readmitted February 22, 1927, and Dr. Taylor did the Keyes operation as already described. Ten days later he was discharged with the following note by the interne: "Stitches removed. Wound practically healed. Patient has very good functional result. Can hold urine both day and night and stop stream in middle of urination.

Case No. 4—Marvin R., aged 9, complete epispadias, incontinent since birth. Admitted June 26, 1928, and operated upon July 9, 1928, at which time a suprapubic drain was placed in and the bladder neck tightened by suturing it in the space of Retzius. Also a plastic operation on the uretha was done by the Young method. This broke down except at the upper end, which held for about a quarter of an inch. Also it was easily demonstrable that the bladder neck remained tight, though the child was not continent at all. Operated upon again August 15, 1928, at which time the Keyes perineorraphy was done, and another plastic attempted on the urethra. The perineal operation healed by first intention and the child became continent, much to his joy. The urethral operation broke down again, but held for about half an inch at the upper end.

Operated upon again August 27, 1928, at which time merely a plastic operation on the urethra was done by turning down a flap from the abdominal wall and suturing it in place on top of the epispadias. This was then covered by foreskin which was turned up from below the glands. A catheter was left in the urethra for about one week and then removed. This time it held, and now he has a penis, not very shapely, but still a tube to carry off his water. He is also continent, though his bladder capacity is very small.

#### SUMMARY

- 1. The sphincters of the bladder consist of two muscles, one a weak voluntary circular one and the other involuntary longitudinal fibers which pull the anterior end of the trigone up against the anterior portion of the bladder neck. They are assisted by the levator ani muscles which lift up the entire bladder floor.
- 2. The expulsive forces of the bladder is not sufficient under ordinary circumstances to force open these sphincters. There is provided also an opening muscle which lies on the trigone and runs through the orifice of the bladder neck. Voluntary contraction of this muscle pulls open the closed sphincter.
- 3. True incontinence can only occur if this muscle remains in a constant spasm or if the sphincter loses its tone and remains open. Even if the first of these occurs, the external sphincter will hold the stream.
- 4. Ulceration, tumors, nerve lesions, sagging of bladder floor, trauma, and congenital defects are all causes which operate to cause the internal ring to stand open.
- 5. The treatment consists in lifting the bladder floor and providing a tonic muscular sling to hold it up. This can be done very simply and easily by doing a perine-orraphy in the male or female. Four illustrative cases are reported.

## INTERESTING KIDNEY CASES— LANTERN SLIDE DEMON-STRATIONS\*

S. D. NEELY, B.S., M.D. MUSKOGEE

In this article I will attempt only to deal with the end results of urinary retention and anomalies of the urinary tract, illustrated by a few slides. Retention of urine may occur anywhere within the urinary tract and may be caused by many factors. For convenience sake it will be divided into urethral, ureteral and renal.

Urethral retention is most commonly caused by prostatic pathlogy or stricture of the urethra. This is so evident in the history and examination that anyone careful in these two studies can, in most instances, determine this factor.

Ureteral and renal retention is much

more subtle and harder to definitely prove. Many factors enter here such as, stricture or narrowed caliber of the ureter, renal ptosis and external causes, tumors (pregnancy, fibroid) or anomalous placements of pelvic and renal blood supply. Renal retention is, in most cases, within the pelvis and is primarily ureteral. It must be remembered that an extremely narrowed major calyx may cause retention or we may have retention within the kidney tubules—this I believe to be the determining factor in parenchymal renal stone.

Granting we have a patient with urinary retention, we know that if any part of the urinary tract is subjected to this insult, urinary decomposition sets in, alkalinity results from decomposition and this favors infection. The pyuria in turn forms a nucleus for stone. Retention, I believe, is the chief factor in all stone formation. The patient may respond with any type of reaction to this, varying from a typical renal colic to a vague, heavy sensation with slight pain. Ordinarily the higher the retention, the more difficult it is to diagnosticate. It may readily simulate appendicitis, gall tract disease, gastro-intestinal disturbances or abdominal angina. It is most important for success with the patient to recognize this condition and it is surprising the number of patients seen with end results of right renal retention, who have had an appendectomy done in the past by men capable of dealing with the true pathology, had it been recognized. The patient and physician are too prone to believe any right lower abdominal pain to be due to appendicitis. Many times I have been approached by laymen saving: "I have a pain here, (pointing to McBurney's point) have I appendicitis?" Suffice it to say that no patient should be subjected to an appendectomy unless disease of the urinary tract has been ruled out, provided he does not present an acute abdomen.

One of the most difficult type of cases with which urologists have to deal and one of the most difficult to treat is a symptomatic anomalous kidney. Often an anomaly of the urinary tract may not be recognized during life. Some are detected by urologists in routine examinations but many are not symptomatic. When symptoms are present, the condition calls for the utmost care and caution in outlining treatment. I have personally seen within the past two years two different cases of renal pain with pus cells and albumin in the urine, each one of which, I firmly believe, have a single kidney. No opposite

<sup>\*</sup>Read before Annual Meeting Oklahoma State Medical Association, Medical Section, May, 1929, Oklahoma City.

urteral orifice could be demonstrated by cystoscopy with the aid of indigo-carmine, no renal shadow could be demonstrated on an X-ray film. Pyelogram in one case showed a normal pelvis with a tortuous, irregular ureter. Operative work was conta-indicated.

Recently operation was done at this hospital upon an anomalous kidney. This patient, in the history, told of an injury to the left side eight months previous, followed by severe renal pain which forced him to bed for forty-eight hours. No hematuria was noted. Since this time he has had attacks of renal pain intermittently and had been told that he probably had a stone. Urological findings showed pus cells in specimen from left kidney, function five minutes; right kidney negative, function four minutes. Pyelogram right was normal. Pyelogram left showed a definite elongation of the pelvis with calices pointing mesially and anterio-posteriorly. Operation proved a rotated kidney and elongated pelvis—some six inches,—which admitted only the little finger. The kidney was otherwise normal. If the condition had been recognized, operation would not have been recommended.

## RENAL COLIC

## O. R. GREGG, M.D. ENID

Renal colic is a term loosely applied to pain in the lumbar region other than lumbago. While only a symptom, it is the direct cause of the patient calling you. Little thought has been given to etiology or diagnosis. Scott, in his new dictionary, states that renal colic is that pain caused by the obstruction of a ureter due to calculus. Mr. Scott is partially correct, but I defy him to differentiate the pain caused by a stone. from that caused by a blood clot, chunk of pus, or an angulated ureter. I have never been able to differentiate the sharp pain of renal colic from the slow, dull pain of nephralgia. It has been my experience that the sharp, colicy pain is preceded by the slow, dull ache and it all amounts to a matter of intensity.

Differential diagnosis must be made from appendicitis, salpingitis, ovaralgia, colitis, cholecystitis, cholelithiasis and duodenal ulcer. Errors of diagnosis are legion. All of us have mental pictures of battle scared abdomens that have had first the appendix removed, then tubes and ovary, and lastly the gall bladder has been sacrificed, while the pain still remains. Braasch states that at their clinic fully one-third of the patients with stones in the right kidney have had the gall bladder or appendix, or both removed without relief. Diagnosis can only be made by a thorough complete urological examination, and with modern technic there should be no prejudice against such an examination.

If urinary diseases would follow the description of our text books, the diagnosis would not be difficult, but unfortunately there are few rules of precedence in urology. Each case is a picture unto itself. Many renal pains are referred to other parts of the urinary tract, as I wish to show you in the half dozen cases that I shall present. Many times an afflicted right kidney causes the pain to be in the left. Distention of a kidney will simulate uterine colic and in one of the cases that I shall show, you will note the kidney pain simulates a prostatic condition.

With all these difficulties isn't it strange that so few urological examinations are made. It is only by careful cystoscopy, pyelography, function tests and urine analyses, that we are able to avoid these errors, and do justice to our patients, and live up to the high standard of our profession.

## CASE REPORTS

Case No. 1—Salvation Army worker, age 46, female, married, one child, usual diseases of childhood without any apparent results. Passed climacteric four years ago.

Patient had had backache more or less continuously for the past nine or ten years, pain low down in back very suggestive of ureterine pain and of a cramping, colicy nature. Three times in five years had had cystitis at which time it was necessary to pass urine every hour day and night. 10-17-28, patient came for examination. Extreme pain low down in back, passes urine every hour during daytime but not so frequently at night. Uterus normal in size and frequently movable. Urine: albumen one plus, acid four flus, pus two plus. 10-23-28, passed 24 F cystoscope with a little difficulty because of tight external orifice containing small caruncle. Bladder very red and edematous, passed No. 5 catheter up right side but on left I got a fine filaform through with difficulty. I have gradually dilated this patient until she now takes a No. 14 F. on either side. She has absolutely no pain in the back whatever,

and has not had since the first of the year when dilation on the left side immediately relieved her.

I want to call your attention particularly to the pain low down in the sacral region that simulates a ureterine colic.

Case No. 2—Merchant, age 34, male, single. Never had any serious sickness until five years ago at which time he passed albumin in his urine and was cystoscoped. Pus in urine most of the time since. Denies all venereal diseases, Wassermann negative; complains of being tired, nervous, loss of weight and "no pep", complains of attacks of pain in the region of the prostate. Both rectal and urethra scopic examinations of this organ show normal in size, no nodules, good consistency, membrane apparently healthy, no growths, normal discharge on massage, no pus. Cystoscope examination of the bladder shows normal condition except flakes of pus floating in urine. Both ureteral orifices somewhat inflamed. The attacks of pain strike him suddenly as if he was attempting to pass a stone and would last all the way from thirty minutes to several hours. At no time were we able to find blood cells in the urine. He complained of backache but in desperation I catheterized the ureters and brought on the characteristic, colicy pain in the region of the prostate. The urine from both ureters shows abundant pus cells. It was with difficulty that I was able to pass a No. 3 F. catheter. Each catheterization would bring on the characteristic pain in the region of the prostate. I have dilated this patient to No. 11F. His attacks are entirely gone, he has gained 15 pounds in weight and feels like his former self and tells me he is soon to be married.

Case No. 3—Age 33, two children, was healthy in childhood, had a mild attack of typhoid fever and mild attack of flu. The patient passed several renal calculae. eleven years previously over a period of about three months. Urinalysis has been made from time to time during the past 10 years, all of which have been negative. Four years ago, patient had an occasional dull pain over McBurney's point. These attacks were accompanied with nausea, vomiting, severe sick headaches. 1926, the W. B.C. arose to 16,000 and an appendectomy was performed. The appendix looked very normal and apparently had no adhesions. In two months, the patient again had mild attacks of pain, combined with the nausea, vomiting and intense headaches. At this

time it was thought probable that an ovarian trouble was the cause and various extracts given with a minimum of results. 1927-28, the pains continued from time to time but seemingly became localized in the region of the liver, and gall bladder was thought of. The patient was cystoscoped without difficulty and a No. 5 catheter passed. Since that time she has been practically free from her pain, nausea, and headaches.

Case No. 4—Male, married, usual child-hood diseases, an employee of a refinery.

Attack of diphtheria which was supposed to have left his heart with a lesion I was unable to find, nor could the internist to whom I referred this patient. G. C. infection 12 years ago treated with the silver preparation and probably cured. For the past three years this man has had a pain on the right side over McBurney's point radiating upward and towards the median line taking the direction of the colon. This was present most of the time but had exacerbations in which the patient would double up and be confined to his bed 24 hours.

The urine examinations were always negative. Diagnosis of chronic and acute appendicitis, and of cholecystitis was made from time to time. I felt sure that this was an appendiceal colic as did the surgical consultants to whom I sent this man. The R. B. C. was 4,000,000 but repeated W. B. C. at no time higher than 7,500. This patient had been cystoscoped in Colorado and ureters catheterized and he thought he had obtained some relief. To please the patient, I catheterized the ureters taking the pyelogram. As soon as the catheter was a third of the way up the urethra on the right side, the patient informed me that I had brought back his appendicitis. This patient has been dilated quite easily to a No. 12 F, his attacks and soreness seem to have disappeared. He has worked the past three months.

Case No. 5—12-11-28. Age 23, married, housewife, usual diseases of childhood. History of passing renal calculus seven weeks previously. Attack three days standing with gradual backache and pain worse on right side, becoming very acute at times, worse at night. Urine shows few pus and many blood cells. A No. 5 catheter passed to pelvis and olive oil injected above calculus. The calculus on the left side was watched carefully with the X-ray as it passed down the ureter, the pain remained the entire time over the region of

the right kidney. As soon as the softened calculus passed into bladder at the end of forty-eight hours the pain ceased instantly.

Note the stones on the left side while the pain was over the right kidney.

Case No. 6—Is a case of silent stones that I know very little of the history. The patient came into the hospital under the surgical services for a smashed foot. He was a man about 65 years of age, and stated that he had never had a sick day in his life, and this was the first time he had visited a physician. The X-ray technician thought she had fogged some films and placed this man on the table for a test exposure. Later on this man was struck with an automobile and killed, an autopsy confirmed the stones. The urine on the patient entering the hospital showed few pus cells only. No history of pain or hematuria could be ascertained.

Case No. 7—Housewife, age 45, married, two children, oil field worker's wife. Patient recently been confined to an Oklahoma Hospital for treatment of cystitis, pain continuous in bladder; must urinate very frequently. Patient referred to me 2-6-28, for pyelitis; complains of pain over region of kidneys particularly the right. Specimens from either kidney and from bladder fails to reveal pus cells. X-ray and pyelograms negative. At this time the patient became somewhat better of a urinary trouble and I returned her to the family doctor with a negative urinary diagnosis. Ten days later he again returned the patient to me with a diagnosis of pyelitis. Search for blood and pus cells again was negative. An internist made an examination trying to locate possible focal infection but failed to give any information.

At the second cystoscopy I noticed a fine eruption radiating from the orifices of the ureters; other than this the examination was negative. The pain over the kidney still persisted running down each ureter, particularly the right. Urination frequent, every half hour with much tenesmus.

Although two or three negative Wassermanns had been obtained, I gave her an injection of neo-salvarsan, more because I knew of nothing else to do, than for scientific reasons. The results were simply magical. After the second injection, the Wassermann was four plus. Her frequent urination along with the pains in the region of the kidneys and ureters had all

disappeared. Ten injections of neo-salvarsan and thirty of mercury and bismuth were given this patient in 1928. She is again taking mercury injections and has no urinary symptoms.

HEMATURIA

J. W. ROGERS, M.D. TULSA

Many things may cause hematuria and many times it is of very little importance. The importance of blood in the urine is due to the fact that it may be caused by malignancy, tuberculosis, stone or prostatism. The blood may be either macroscopical or microscopical and in either case we have no right to dismiss a patient with blood in the urine until we are reasonably sure none of the fore-going conditions exist. It is true that in some cases we find large quantities of blood in the urine and being unable to find any cause, call it essential hematuria, but in such instances the patient should be warned to have periodic examinations, since an early case of tuberculosis or a small papilloma might be overlooked. Don't treat hematuria expectantly or as a disease entity, keep in mind that it, like fever is only a symptom and such an important symptom as to demand the most pains taking examination to find the cause.

Some idea of the source of the blood may be gained by the three glass test. If the bleeding is from anterior urethra, the urethra will be seen to bleed, the first glass wil contain blood and the remaining glasses will be comparatively clear. If in the posterior urethra, and in considerable quantity, there will likely be blood in all three glasses but most in the first glass. In cases of inflammation of the posterior urethra and prostate we have terminal hematuria with the third glass containing a few drops of freshly passed blood and usually considerable pain at the termination of the urinary act.

Blood coming from above the vesical sphincter is usually thoroughly mixed with urine and may come from the bladder, ureter or kidney. Urine passed may show worm-like ureteral casts of blood clots which means that the blood comes from above the bladder or there may be blood casts which mean bleeding from the parenchyma of the kidney.

Given a case of hematuria, it is then first necessary that we determine the

source and second, the cause. If a patient has an acute gonorrhea and a terminal hematuria we assume that it is due to the infection or improper treatment and treat expectantly. If a person is suffering from an acute infection and has blood casts as well as free blood, we are justified in the belief that he has a hemorrhagic nephritis and treat it accordingly. I can think of no other type of hematuria that should not be more thoroughly investigated at once. If the urine contains blood but no pus or bacteria, we are likely dealing with a neoplasm, stone or acute nephritis. If we have blood, pus and no bacteria or only tubercle B., we are dealing with tuberculosis. If we have blood, pus and bacteria we may have any of the above secondarily infected or simply a cystitis.

If the bleeding is from the urethra, an endoscopic examination will reveal the nature of the trouble. If from above, a cystoscopic examination will tell us if it is from the bladder or ureter. If the blood is coming from the ureter, then it is necessary to make pyelogams and ureterograms; when there is bleeding from the kidney, a pyelogram may be confusing, as a blood clot in the pelvis may lead one to think he is dealing with a hypernephroma when in reality it may be some less serious disease. Such pyelograms should be rechecked and, if possible, when there is no bleeding present.

In many cases of microscopic hematuria, repeated pyelograms are necessary to demonstrate the presence of a growing tumor, I know of nothing that could be of more importance for it is only in the early diagnosed cases that the patient has a chance for his life. I was called to see a man that had been bleeding profusely for three or four months; cystoscopy showed blood from the right ureter or kidney. A pyelogram revealed a growth in the kidney. The kidney was removed but the patient died from general carcinomatosis some three or four months later. A very unpleasant sight I assure you.

I recently saw a woman that had been bleeding for four months. She had been X-rayed, given hemostatics and bladder washes and had nearly bled to death. A large papilloma was found near the left ureteral orifice. Two fulgurations stopped the bleeding and with four such treatments the tumor was entirely destroyed. Another case of a woman who had been bleeding off and on for six years had a carcinoma involving the ureteral meatus that could not be cured by radium.

A man, age 42, came into my office carrying a renal stone as big as a bird's egg; he passed it the day before and had had some bleeding following. He had been having such attacks since childhood, had been in hospitals, had been treated for tuberculosis but had never had so much as an X-ray examination made. A stag horn calcus, involving the whole kidney pelvis, was found; by good fortune the opposite kidney was normal. Many of our cases of tuberculosis are investigated after the whole urological and genital tract is invaded, when we can only give palliative treatment.

Blood in the urine is always of importance, simply because blood ceases to be passed does not mean that the pathological process has disappeared, nearly all will stop bleeding for a time and in the meantime the patient will lose his chance for health or life.

#### CONCLUSION

The presence of blood in the urine is of the utmost importance. It may be and frequently is a symptom of such serious diseases as cancer of the bladder, ureter and kidney, prostatism, calculus and tuberculosis of the kidney and bladder.

Until one is reasonably certain that none of these exist, the patient should be under observation and be given the benefit of the most pains taking urological examinations.

# PULMONARY TUBERCULOSIS\*

FRED HERBERT CLARK, M.D. WASHINGTON, D. C.

In the face of the volumes that have been written on the above subject and the splendid serial publications that are coming from the press monthly, it is perhaps somewhat presumptious to even attempt the presentation of a paper upon the above subject, but, believing in the old saying, "The constant dripping wears away the stone," the writer makes bold to ask your consideration of this oft repeated subject.

It will not be the purpose of this paper to even attempt a strictly scientific discussion, for, while it might be of very great interest to some to discuss the minute formation of the tubercle, as to its beginning, its growth by layers, its origin,

<sup>\*</sup>Published with the permission of the Medical Director of the U.S. Veterans' Bureau, who assumes no responsibility for the opinions expressed or the conclusions drawn by the writer.

whether a dead or a live bacillus, etc., from a scientific standpoint, we might refresh our minds and brighten them up somewhat, but would we have accomplished what, from a practical standpoint we most desire, that, when tomorrow we again take our place in the front line of battle, will we be the better able to wage war against this arch enemy, than we were before. If we are not, then this effort shall have been in vain; if we are, be it ever so little, then the time we have spent in this consideration may be considered as a gain and placed on the profit side of our *information account*.

In the wide realm of preventive and curative medicine, there has, perhaps, never been put forth as great and wide spread effort to combat any disease as there has been in the great fight against tuberculosis, and may I say, "We fight not as those without hope." Only a little more than a quarter of a century ago, we were practically struggling in the dark. We were speaking of the disease as "the great white plague" and dreading contact with it nearly equal to that formerly felt for yellow fever and the so-called "black plague." But today, we do not face this condition with the same hopeless feeling that was formerly felt; a new era began when the specific organism causing this disease was isolated and we knew what kind of an enemy we were fighting, and it is to the manner of carrying on this fight that the writer desires to call your attention, with the hope that some word may be dropped which may be of some service to those who must bear the brunt of this battle, and who are the family physicians to whom I am speaking.

I know how we dislike at present to consider anything of a military nature, but may I not ask your indulgence as I try to show every family physician present the strategic position he occupies by likening him to a member of the advance or the outpost of an army moving forward into battle; no sleep and little rest for those brave men as they kept every faculty strained to prevent a surprise by the enemy. Is that not just the position the family physician holds today, every professional faculty strained, sometimes almost to the breaking point, that this deadly enemy may not break through lines of dofense. While prior to the days of the World War, we were busily engaged in fighting tuberculosis, it took this great unheavel to thoroughly awaken us to our full responsibility in this great struggle. To some of us in these years since the war, pictures

have been printed on our memories of the havoc that tuberculosis has wrought, that can never be effaced. Do not misunderstand me and think I am saying the war was the cause of all the tuberculosis that has followed in its train, for I do not believe that, but what has happened is that, because of the war, it has been brought to our attention and the means of relief that have been provided by our government, running up into millions annually, serve as an illustration of the extent of the ravages of this dread disease, which has been going on for years and years, but which has been so definitely brought to our attention, that I feel both professional and laymen are alive to the importance of this subject as never before.

May I present to you to day, as a key thought for the basis of this short consideration, a statement used by Dr. Wilbur, Secretary of the Interior, recently, in an address before one of the Tuberculosis Associations in Washington, D. C. While I had heard it in effect time after time, yet the trite manner in which he presented it, struck me with great force; he said: "Early discovery presents our greatest hope for early recovery." May I ask that, if you forget every other word I say to you, that you will remember that statement, for in and on it hangs all our hopes for future success.

As many of you know, for the past seven years the greater share of my time has been spent in the tuberculosis hospitals provided by the Veteran's Bureau for the care of ex-service men and nurses suffering with tuberculosis, so that the message I bring you is in no sense a merely theoretical one, but one burned into my mind so deeply it will never be erased.

Will you pardon me if I bring you just one picture that I trust may illustrate what I am trying to bring out by the statement I gave you for my key thought. A man thirty years of age came on my ward and under my immediate care. As I was roentgenologist, as well as serving as ward surgeon, I, as a routine matter, came in contact with the X-ray films made the day following his admission to the hospital. These showed his was a far advanced case of pulmonary tuberculosis, both lungs being involved, with a large cavity in one unner lobe. He was married, with a splendid wife and two beautiful little girlseverything a man could wish for, so far as his home was concerned. This is the history he gave me. He was a white man and a carpenter and builder. When the war

came, he dropped his carpenter tools, put on his uniform and picked up his rifle. After an honorable service across the sea, he returned home and again began work at his trade. In 1921, his family physician, after examining his chest, told him he felt he had tuberculosis in one lung, but that there was but a small involvement and he felt sure, if he would stop work and rest, or as we say in hospital parlance—"chase the cure"—for a year, he would be well. But he thought he was strong and robust and laughed at the doctor for even thinking he had tuberculosis, he went on with his work—the next year the doctor died. Whether the man really felt he had tuberculosis or not, he never admitted it, but he worked on until 1926, or for more than four years, when he broke down, and a few weeks later entered the hospital, where I saw him and where, after about three months, he passed away, a victim of his own mistake, for had he listened to the advice of his family physician, I can see no good reason why his case like hundreds and thousands of others of a like character might not have by careful treatment been brought to a condition of arrest.

Now will you indulge me while I briefly portray another case, who also was under my professional care and observation for a little more than a year. In the spring of 1924, while holding a responsible position as a clerk in a large steel manufacturing concern, he began to be troubled with a rather severe cough; he found that he seemed to tire more easily than formerly and was losing weight. He did not do as so many do, take some patent cough mixture and a ready made tonic, but, selecting a physician whom he considered well qualified, submitted himself for an examination, and to his surprise as well as dismay, found he had a far advanced case of tuberculosis involving one lung throughout all lobes and the upper lobe of the other, the physical findings of the examiner being well supported by the X-ray findings.

There was no delay on the part of the latter young man, but, selecting the institution he felt promised him the best opportunity for a cure, he entered it as a patient, and in the common language of hospital patients, began "chasing the cure." It was not an easy task, for he was slow to show any improvement and a little later hemorrhage followed hemorrhage, but still he fought on. Having the old idea that a change of climate might be beneficial, he went far west, but his progress was no faster there, apparently, than it

was in the East, and so selecting a tuberculosis hospital within a hundred miles of his home where the members of his family and his friends might come and see him occasionally, he entered this hospital, determined to win in the fight to regain his health, and it was one of the rewards that brighten the way of the physician caring for patients of this character that had apparently reached the turning point, for he slowly but steadily began to show improvement, until a few months ago, after being under my observation for a little more than a year, he had regained nearly all his lost weight, and was apparently well on his way to the stage of arrest.

I have dwelt at length on the comparison simply to try to add with all the emphasis I can to the statement quoted early in this paper—"Early discovery is our surest hope for early recovery." In fact, as the problem appears to me, early discovery is the only means promising any sort of recovery, coupled, of course, with the full cooperation of the patient in the carrying out of prescribed treatment.

There are many problems that must be met by one who undertakes the work of a specialist in diseases of the chest, which it is impossible to more than merely mention here. It seems to me that the first great requisite for success in this field of medicine is *patience*. There are many reasons for this, not the least of which is the confidince it inspires in the patient. How many times has the physician listened to the statement of the patient, that, when Dr. Jones examined him, it did not take him ten minutes to make the complete examination. While it is true that years of continued practice at any given method of procedure enables one to carry out such a procedure more quickly than the novice, vet in the examination of the chest there are so many different points to be considered, which are different in practically every case, and that require careful consideration in summing up the case, that one needs plenty of time and the grace of patience to reach the goal of success.

The last few years have impressed upon me, more than all my former years of practice, the great value of a very carefully taken history. While the family history is of importance, the personal history is of greater importance and should set forth in detail, whether or not the patient had the usual childhood diseases, and if so, whether they were severe or mild, and whether or not they were followed by any complications. Ascertain if the patient is subject to frequent colds and their character, as to whether they are confined to the head or to the chest or both; their frequency and duration, and whether or not they are accompanied by sore throat, and if so, whether it is in the form of a tonsillitis or a general pharyngitis. I am speaking of all these common things, because in these later years in many instances improper diagnoses of pulmonary tuberculosis have been made, when, in fact, the whole trouble lay in a pair of old chronically inflamed tonsils, which were causing a cough and an evening temperature, two of the most commonly accepted symptoms of pulmonary tuberculosis.

Is the writer making this statement purely on theory, or is it substantiated by fact? By fact, found repeatedly long after patients had been told they were suffering from pulmonary tuberculosis, and when upon examination, no evidence of such a condition was found, but where a pair of old infected tonsils were found, and after their removal the evening temperature and cough ceased altogether.

Am I speaking altogether too elementary? If so, I beg the pardon of my listeners, but I am trying simply to conduct a review, and am starting at the very beginning so we may advance, if there is time to do so, feeling we have thoroughly prepared the way for the later advance.

The history taken, naturally the next step is the examination. To each of us there has been given, if we are normal physical individuals, five special senses—three of which are called into use in an examination of the chest, and each has its own relative importance. These three special senses are seeing, feeling and hearing. First of all, let me say, whether a doctor can afford to have a comfortable desk at which he may work, he cannot afford to get along without a pair of physician's scales with the measuring rod for ascertaining the height. Scarcely ever a patient comes for examination who can give the physician their proper weight. Every old line insurance company has a carefully prepared table of proportionate weights and heights upon which to base the relation the weight shown on their examination blank has to the normal weight, and this matter without question has not been given the attention it deserves.

The weight and height taken, our next step is with the trunk bared to the waist, we observe the development of the chest, the stage of nourishment, the color of the skin, always observing closely for scars or other signs of a former operation, the movement of the chest, comparing one side with the other, the character of the breathing, and when we have finished this, we have a good ground-work upon which to base the opinion we shall render, when we have finished our examination.

Now we come to the second special sense or feeling—trained finger tips, and fingers may secure for us much more infomation than we at first might think, if we are willing to be patient in our training of them. Two things only will be mentioned—first, the quality of the muscular tension of the muscles of the chest wall and the absence or presence of fremitus, and its apparent increase or decrease with that found in the normal chest.

Now we are ready to bring the third special sense into use; namely, our hearing, or using the common term—auscultation. This is not only the most important if comparison of the various steps in the examination may be made, but is by far the most exacting of all the methods used in an examination of the chest. No one can simply take a textbook and after reading over a description of what he may expect to hear in an abnormal chest, hope to apply his stethoscope to the chest and immediately find what has been so beautifully described in the textbook. In a general way, it may be said that only after long and patient listening to the various breath sounds in the normal chest, is one able to detect the abnormal. And in the personal opinion of the writer this is true, if he be permitted to base such an opinion upon his own experience. The question is frequently asked as to whether certain men are not better adapted to the examination of the chest than others, and whether one with some knowledge of music might not have some advantage over one devoid of any musical talent? This question is undoubtedly based on the fact that pitch, rhythm and intensity have their places in the proper classification of the sounds heard in the chest, but the writer has been unable to see that a knowledge of music was of any great aid, so far as his personal observation goes. Long continued practice in short periods will, without doubt, bring the best results. It is too apparent perhaps, to even be mentioned that one must have the opportunity to examine abnormal chests repeatedly, in order that he may get all the peculiar abnormal sounds firmly impressed on his mind. In explanation of what the writer has said about short periods, prolonged listening with the

pieces of the stethoscope pressing tightly in the ear after a short period of time causes a sort of blurring or running together of the various sounds, and the examiner finds himself confused as to what he is really hearing. When this occurs, simply remove the stethoscope, rest for fifteen or twenty minutes, and then it will be found that the sense of blurring together clears up. My attention was called to this some time since by a splendid chest examiner of Cincinnati, who was speaking to a small group of physicians and brought this point out very forcibly. In fact, he went so far as to say that he could make but six chest examinations a day; three during the forenoon and the same number in the afternoon, and that to attempt to do more than that, the sounds became as I have just described them, and he felt that an examination made under such circumstances would not be a reliable one. I have, while serving as ward surgeon on a tuberculosis ward, been able personally to prove the correctness of Dr. Irwin's statement. To describe the various sounds heard as the examiner listens, would prolong this paper to an unpardonable length, and it was not the purpose of the writer, as stated at the beginning of the paper, to attempt to present a scientific paper, but, on the contrary, to make a brief review of pulmonary tuberculosis as a whole.

As is known to the most of you, the writer has spent the greatest part of the last seven years in the X-ray laboratory giving nearly his entire time to diseases of the chest, and when the invitation to present a paper at this meeting was accepted, it was his purpose to present a paper on this phase of tubercular work, illustrating the same with films taken in the routine of his work. A transfer from that work to other duties away from the hospital made this impractical, so the title of the paper was changed.

If we should omit considering the X-ray as one of the methods of chest examination, we should omit a very important part of the examination, and one which no one can afford to do without. Let me set myself right in this matter. While as a roentgenologist I put the greatest amount of faith in and dependence upon the findings brought out by a well taken X-rav film, as interpreted by the trained specialist in roentgenology, but only as a support to a well made physical examination and never in lieu thereof. Under no consideration do I feel that a diagnosis may be made on the X-ray alone. I cannot help feeling that

many mistakes have been made because of th.s. Not so very long ago, there was a tendency to urge physicians to invest in a small X-ray apparatus, the salesman holding out to the physician what a distinct advantage it would be to him to be able to do his own X-ray work. No fallacy that I can recall was ever presented to the doctor with so little merit as this. He was told that the apparatus had now been so perfected that it was simple, in fact fool proof, and that he might just as well be making all these extra shekels, which were really easy money, as to be sending them to the X-ray specialist. The mere mention of the X-ray makes the writer wish for the moment that he had persevered in the former plan and that together by means of the shadow box and sufficient films we might have considered what the X-ray really shows, when carefully considered.

The examination ended, what next, assuming, of course, there is pulmonary tuberculosis definitely or even suspected to be present. So much has been written in both professional and lay press, and spoken from the public platfom, that there is really nothing new to be said; but there is often great good gained from repetition, even though it be frequent, so though it be old, let us consider some of the more salient facts entering into the care of the tuberculous patient.

The first and I believe the greatest element that will contribute to a successful end result is the establishment of complete and supreme confidence in the physician by the patient; this can only be brought about by the physician showing a personal interest in the patient, not that stereotyped professional interest so often spoken of, but that interest which at once becomes apparent when the physician in imagination tries to place himself in the place of his patient, and tries to think how he would feel if he really were in the place of his patient, what he would like to have done for him and said to him, in fact consider everything the patient must pass through every twenty-four hours. An easy task? Not by any means, but one that calls for all that professional skill and psychology, which a heart-felt interest can devise. And let me say, that the physician who is willing to do this will be rewarded by the implicit confidence of his patient, which I believe is the greatest single element contributing to a successful end result of the case. The physician may ask what he will that is reasonable of such a patient, and he will meet with a cheerful compliance. Am I talking about theory and in riddles?

No, if perchance I may be speaking to those who have been placed where they had the care of any considerable number of tuberculous patients.

After much study and observation, I have come to believe that it is a serious mistake to attempt to care for tuberculous patients in large groups. Please do not misunderstand me, and above all please do not quote me as not in favor of large tuberculosis institutions, for I am a firm believer in the necessity for and results obtained by them. But I am also a believer in dividing patients up into much smaller groups than is done in nearly all institutions. If I could have what is my ideal, I would have not more than six ambulent cases in a group with their own cottage built with its sun porch, its kitchen and dinette, and common living room; all on one floor, the building built in bungalow style.

There are so many reasons for this, that it would prolong this paper far beyond the time allotted to it, were I to even attempt a very brief discussion of the advantages, as I see them, so I shall mention only one or two that to me are of the greatest importance:

First— A more *homelike* condition, which will create in the mind of a patient more of the feeling that he is at home and not that he is an infinitesimal part of a huge mass, whose identity is lost. He will feel that he is receiving more nearly *personal care* than where he is one of from thirty to fifty patients in a large group.

Secondly—The question of feeding the patient is the most trying question that arises in the care of the tuberculous patient. No matter how well the large kitchens are kept, and I want to say that, so far as I nave observed them, for cleanliness they are not only the equal, but, as a rule, surpass the small kitchen, yet there is the taint of food prepared in mass, which sooner or later becomes objectionable even to a well person; how much more so then to a sick person, who has a hard time to find anything that will tempt his appetite. Then the service of the food in the large mess or dining hall cannot be as satisfactorily accomplished as where a small number sit down around a table, where everything comes directly from the small kitchen, steaming hot and in small quantities.

I am perfectly aware of the apparent objections with which this plan will be met, of which the first will be its impracticability and its apparent increased cost, as well as the apparent inability to secure the additional help required. These are all obstacles, I grant, but I do not believe that they cannot be overcome. When the Wright Brothers were experimenting with their first airplane, wiseacres said very forcibly that they had obstacles ahead of them that could not be overcome and that man had better stay on the ground where he belonged. But now a trip from America to Europe in one of the air palaces excites but little interest and certainly the obstacles that confronted them at first have been met and ovecome. Why, then, may we not apply the same reasoning to the question at hand.

Numerous other reasons for the dividing of large numbers of tuberculous patients into small groups could be given, but time will not permit, and the two mentioned are deemed among the most important.

This paper has already been unduly extended, but lest the writer might be accused of only seeing the pessimistic side of this question, let us turn for the few remaining minutes to a more hopeful and pleasing picture.

The writer, wishing to give a few actual statistics—by actual I mean those made by computations from official reports and not estimated—requested from the Statistical Division of the United States Public Health Service, their official report. Before giving these figures, let me say that the figures presented do not represent all the territory of the United States, but what was represented by the original registration states. These figures are for the period covered by the years 1900 to 1923, which period, of course, includes the World War period, as well as the period following the influenza period of 1918 and 1919, and its immediate effect. The figures given are the total number of deaths from tuberculosis for each 100,000 of population. If the total population of a state or area is known, the total number of deaths from tuberculosis may easily be computed.

The following table gives the year and number of deaths from tuberculosis per each 100,000 of population:

1900—195	1912—145
1901—190	1913—144.5
1902—175	1914—144
1903—178	1915—143
1904—184	1916—141.5
1905—180	<b>1917—14</b> 3
1906—178	1918—146

1907—177	1919—123
1908—170	1920-117
1909—162	1921— 88
1910—163	1922— 87
1911—159.5	1923— 86

These figures, which are the latest complete computations published by the U. S. Public Health Service, and which show in 23 years a reduction from 195 deaths per one hundred thousand to 86 deaths per one hundred thousand of population, or a reduction of 41.7 percent, certainly disclose a result that is sufficient to make every one feel encouraged, and that after all conditions *might be worse*. A single computation will perhaps serve to give us a little better idea of the real meaning of these figures, for tables of figures are odious at the best.

If the population of the State of Oklahoma in 1900 was 2,000,000, using 195 as the average number deaths per 100,000, then there must have been 3,900 deaths from all forms of tuberculosis in Oklahoma during the year 1900. Assuming that from the year 1900 to 1923, the population has increased to 2,500,000, and the death rate remained the same, there would have been 4,875 deaths from tuberculosis in the state during the year 1923. But the actual number of deaths computed on the average was 2,150, or a saving of 2,725 human lives, and I ask you was this not worth while?

This paper has already been prolonged beyond the time it was intended to consume, but it would not be fair to those who have been the means of causing this great saving of human life to pass the subject by without at least paying some mark of tribute. And, though I am a physician, I am going to give the lion's share of the credit to the loyal men in the field of medicine who have labored so faithfully to bring about this result, and I hope the figures presented in this paper may be a means of encouraging them to a continuance of their earnest and untiring efforts to completely annihilate this monster disease.

How may we do it? I know of no better way than that mentioned at the beginning of the paper. EARLY DISCOVERY GIVES HOPE FOR EARLY RECOVERY. How may we accomplish early discovery? ETERNAL VIGILANCE evidenced by frequent chest examinations

by the chest specialist, occasional stereoscopic X-ray examinations interpreted by the roentgenologist with special training in chest radiography, daily morning and evening temperatures, and weekly weighing with carefully kept records of the same. All these and many more may be of great assistance in early discovery.

# AMERICAN PHARMACEUTICAL MANUFACTURER'S ASSOCIATION

"Keep well—Consult your Family Physician" is the slogan proposed as a part of the advertising campaign to be fostered by the American Pharmaceutical Manufacturers' Association in the coming year. Definite action on the nature of this campaign as well as action on the future research program of the Association will be taken at the semi-annual meeting to be held in the Hotel Washington, Washington, D. C., December 16 and 17, 1929.

The meeting to be held on the first day will be given over largely to problems of executive nature and a general discussion of means and ways of obtaining greater efficiency and economy in distribution.

The second day will be devoted primarily to meeting members of the various government bureaus and departments with which the members of the Association came in contact in the course of their daily activities.

A visit to the Food, Drug and Insecticide Administration, Department of Agriculture and to the Prohibition and Narcotic Divisions of the Treasury Department will occupy the forenoon of December 17th.

At the luncheon on this day, Senator George H. Moses, of New Hampshire, President pro-tempore of the United States Senate, will be the guest of honor and will address the members. The afternoon will be devoted to addresses by other government officials and reading and discussion of the reports of the Research Board and the Contact Committee of the Association.

Among the important topics to be discussed in the executive sessions are: Publicity, The Proposed Census of Dispensing Physicians, Institutional Advertising and the "Consult Your Family Physician" campaign.

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# THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notlfication of the editor, Barnes Bullding, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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## EDITORIAL

# THE LAW ON OSTEOPATHY AND CHIROPRACTIC

The Secretary-Editor rather frequently receives letters complaining that osteopaths and chiopractors are violating the law by prescribing drugs, or the letters request information as to the right of these cults to administer drugs. The activities and limitations of osteopaths and chiropractors are set out in detail in the Oklahoma statutes as well as the rights of physicians, pharmacists, food and drug venders and all others pertaining to public health matters; however, for the information of those who may not have opportunity, time or occasion to personally consult

the statutes, we wish to quote abstracts from them: "Osteopathy, Oklahoma Statute, 1921, Chapter 79, Article 13, Section 8913:

"3. No osteopathic physician or osteopathic physician and surgeon shall use or prescribe any drug or chemical, the nature and use of which is not taught in the curriculum of recognized colleges of osteopathy, and the violation hereof shall be punishable as a misdemeanor under the general laws of this State."

The "nigger in the wood pile" in this mild reading clause lies in the words underscored. It is well known by inspectors who have closely investigated schools of osteopathy, that materia medica, therapeutics and the application of drugs is practically an unknown quantity in those schools. This same applies to laboratory work. It will be recalled that upon one inspection in certain supposedly high class osteopathic schools the laboratory paraphernalia was found unused and covered with dust. There was no evidence that it had ever been used. Nevertheless if these osteopaths have attended a school where some slim, specious claim is made that the administration of drugs is taught it would seem that there is no possible way to prevent them bungling along and possibly imperiling the lives of their clientele.

Oklahoma Statutes, 1921, Chapter 79, Article 12, Chiropractic. The writer is unable to find a single word in the chiropractic act permitting the chiropractors to administer any sort of drug, technically speaking, not even epsom salts or castor oil, if he prescribes it as a chiropractic practitioner. He might be permitted to charge and collect for the actual cost of the castor oil if such is prescribed, but it is doubtful if he would be permitted to go to court and sue for his fee upon the theory that there was professional knowledge and skill over and above the average attached, to the administration of the salts or oil. The statutes are eloquently silent upon their right to administer drugs. Inferentially the law only apparently intends that he shall practice those things which the following may fit him to practice and they are these:

"Chiropractic principles, anatomy, histology, physiology, symptomatology, orthopedia, chemistry, spinography, diagnosis, sanitation and hygiene, pathology, public health service and adjustology."

Now as a matter of fact the writer is of the opinion after consultation and discussion with physicians, not only in Oklahoma but over may sections of the United States, that the practitioners of the medical profession are making a futile waste of time and accomplishing no good whatever by worrying about what little practice the disciples of these two cults are doing. There seems to be a general impression that most people should by this time be fairly well informed as to the limitations of their work and this is believed to be the true state.

Now one can hardly recall a case where a person is extremely ill which does not reach the hands of the regular practitioner. It is true that great damage and fatal results may ensue due to the delay, but the medical profession cannot be held accountable for the foolish foibles and eccentricities of a certain percent of the population. They are like sheep, they will follow any old alleged leader, regardless of worth or merit.

There seems also to be a general impression among thinking men, not necessarily physicians, that all men who profess to advise, heal, treat or undertake the care of ill people should first conform to the requirements of what is known as the Basic Science Law. This law, in substance, provides that all people charged with responsibility should first be qualified in certain basic sciences. It is believed that these qualifications are necessary before anyone, regular physicians, osteopaths, chiropractors or anyone else, is in position to undertake the problems confronting them.

# IMPORTANT FACTORS IN UROLOGIC WORK

Since the advent of the cystoscopy, ureteral, catheterization, X-ray and fluoroscopy, no single phase of medicine has obtained such perfection as to diagnosis, and probably no branch of medical or surgical treatment has improved as much as urology.

This issue of the Journal is a rich one in its presentation of various urological phases. This editoral, however, would call especial attention to one element, which will always be ineradicable; this is the human element.

Urology being in the hands of physicians is naturally subject to the interpretations and misinterpretations the various physicians may place upon the case. Notwithstanding that urology may now be said to be the most exact, in so far as de-

termining the nature of the trouble in advance, it is still the grievous experience of many physicians and surgeons to note that the general practitioner is not availing himself of the opportunity offered by modern diagnostic means as applied to urology. Fortunate indeed is the man who has a right ureteral or right kidney condition and escapes an appendectomy prior to the discovery of the real cause of his trouble. This is a true as well as a regretable indictment of too precipitate surgery. It is true that a certain few of these cases place the physician and surgeon in a trying position, and perhaps occasionally it is better to err on the wrong side and remove an appendix than to err on the wrong side and leave one which will destroy life. The symptoms of right kidney and ureteral trouble so closely simulate certain phases of appendicitis that the diagnosis of the latter and nonrecognition of the former will probably continue to occur for a long time.

There are many other problems of urology too numerous to mention, nevertheless they are too long overlooked by the attending physician, the physician who generally sees them first.

Blood in the urine demands investigation; it may mean little or nothing or an avoidable fatality. The main thing if the family physician is not certain, is to refer these cases to competent urologists where they may be properly worked out and the best system of treatment adopted. No phase of medicine requires such wide technical knowledge and such perfection of technique as does urology. That should always be borne in mind. Perhaps there is nothing so crippling as a nonrecognized prostatic condition or recurrent pyelitis, both of which are amenable to treatment, as a rule.

# THE END OF THE YEAR

The editor takes this occasion to cordially thank the many men who have gone out of their way and given of their time and energy to assist in making his pathway easier, at the same time creating a larger and better Journal. We believe that our Journal has been better in the past twelve months than ever before. We hope to continue improving it but to do so we must have the continued assistance and contributions from the best men in the Oklahoma medical profession.

It gives us pleasure to state that our

financial affairs continue to be in good condition, that our editoral support is the highest class and slowly improving. In this connection we would again call the attention of our members to the fact that none but the elect may enter the advertising pages of the Journal, therefore, all things being equal our advertisers should have your support.

We take this occasion to extend best wishes and greetings of the season and sincerely hope that 1930 may prove to be a prosperous year for our members.

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## Editorial Notes-Personal and General

DR. W. T. TILLY, former resident of Muskogee, has opened an office in Fayetteville, Arkansas.

DR. F. A. ANDERSON, Claremore, was reported suffering from cuts and bruises after an automobile accident which occurred November 29th.

DR. C. A. THOMPSON, Muskogee, attended the annual conference of State Secretaries and Editors, held in Chicago, November 15th and 16th.

DR. WALTER HARDY, Ardmore, has returned after a three weeks absence to Boston, Detroit and Chicago where he attended a number of medical conventions.

DR. W. W. HICKS has removed from Okmulgee, going first to the Mayo Foundation for post-graduate work in oto-laryngology and then to the State of Washington.

DR. FRANK H. McGREGOR, Mangum, was detailed for a month's service in the War College, Washington, D. C., in October-November. Dr. McGregor was one of two reserve officers detailed to such duty.

DR. LEONARD C. WILLIAMS, formerly of Osage, announces the opening of his office, 402-405 Osler Building, 1200 N. Walker Street, Oklahoma City, for the practice of Surgery, Gynecology and Diagnosis.

WOODS-ALFALFA Medical Societies held a joint meeting November 26th at Cherokee, entertaining with a banquet and general round-table discussion. Dr. Clyde Beson, State Health Commissioner, gave an address after the dinner.

DR. FRED S. WATSON, Okmulgee, has returend to his office in the Commerce Building, after two years spent at the Graduate School of Medicine, University of Pennsylvania, Pa. While there he earned the degree of Master of Medical Science.

Dr. G. C. Moore, formerly of the Pulaski County (Arkansas) Society, has applied for membership in the Okmulgee County Society. This was approved at the meeting of the Society on Monday, November 25th. Dr. Moore is connected with the Ming-Vernon-Stark Clinic.

DRS. A. D. YOUNG and W. K. WEST spoke before the Stephens County Medical Society in November. Dr. Young spoke on Chorea and Dr. West on the open treatment of fractures of the lower extremities. Drs. S. H. Williamson and Fred L. Patterson were hosts.

OKMULGEE-OKFUSKEE County Medical Societies were entertained by the profession of Okemah, Monday, November 25, 1929. Dr. E. P. Allen, Oklahoma City, associate professor obstetrics, State Medical School, presented a paper and two reels of movie film on "The Obstetric Pelvis."

OTTAWA MEDICAL SOCIETY elected the following officers for 1930 at the regular meeting Wednesday, December 4th: Drs. L. W. Trout, Afton, president; B. W. Ralston, Commerce, 1st vice-president; General Pinnell, Miami, 2nd vice-president; J. W. Craig, Miami, secretary; re-elected C. A. McLelland, Miami, censor.

JACKSON COUNTY MEDICAL SOCIETY opened their Fall meetings with a banquet October 25th. Drs. J. Z. Mraz and D. D. Paulus, of Oklahoma City were special guests and speakers of the evening. Abdominal troubles in connection with surgery or medical cases were the topics under discussion. About eighteen physicians attended.

HUGHES-SEMINOLE COUNTY Medical Society held a joint meeting with the Seminole City Medical Society on November 18th, in the Puritan Cafeteria, at Seminole. A wild duck supper was served after which the following program was given: "A General Talk on Diagnosis and Treatment of Endocrinopathies" with lantern slides, by Dr. Henry H. Turner, Oklahoma City. "Some phases of Gall Bladder Surgery," by Dr. J. M. Byrum, Shawnee. "Co-operation" by Dr. A. C. McFarling, Shawnee.

THE OKLAHOMA STATE HOSPITAL ASSOCIATION met in Tulsa, December 4th and 5th. The meeting was called to order by Dr. Frank H. McGregor, president, Mangum. An address of welcome was delivered by Dr. Fred S. Clinton, Tulsa. Among the physicians present, directly connected with hospitals, were: Doctors, L. E. Emanuel, Chickasha; B. H. Burnett, Duncan; T. M. Aderhold, El Reno; Russell C. Pigford, Tulsa; B. &'. Collins, Claremore. Dr. Frank H. McGregor was re-elected president and Dr. A. J. Weedn, Duncan, secretary.

TULSA COUNTY physicians and surgeons availed themselves of the Extension Service of the University of Oklahoma, the course to run during November-December, and to cover Anatomy, Surgical Anatomy and the technique of special surgical work. The demonstrations in anatomy are in charge of Dr. J. C. Stephenson, head of the Anatomy Department of the State University. The class is reported as having been very enthusiastic in their work. Those availing themselves of the course are: Doctors H. S. Brown, J. C. Brodgen, P. N. Charbonnet, T. H. Davis, Hugh J. Evans, F. A. Glass, F. W. Henderson, J. W. Rogers, C. S. Summers, S. Murray, R. Q. Atchley, C. I. Johnson, A. Ray Wiley, L. N. Tucker, Ralph McGill, all of Tulsa; E. W. Reynolds, Bristow; J. H. Laws, Broken Arrow.

#### NEW HOSPITAL OPENS

The Polyclinic Hospital on Thirteenth Street near Robinson, Oklahoma City, has just been opened by Dr. Marvin E. Stout.

The hospital has a capacity of 75 beds. The building is fire proof throughout. The rooms with Simmons all steel furniture, in various colors. The beds are equipped with Beauty Rest mattresses, and are adjustable from all angles without interference with patients. The lighting system is all that could be desired. Every room is well lighted with lights that can be dimmed to suit patients' desire. There are small night lights close to the floor for nurses' convenience and no disturbance to patients. Telephone and radio phones in each room for patient's pleasure and convenience.

The floors are white and black. U. S. rubber tile, noiseless and resilient. The wards are large, light and airy, with beds as good as the best room in the hospital.

The operating room is modern in every respect. Built in sterilizing units, steam heated blanket warmers, doing away with the danger of hot water bottles. Adjoining the operating room is the chemical laboratory, X-ray room and cystoscopic room.

The atmosphere is pleasing and the prices are within reason.

### DOCTOR NEWCOMB R. NOWLIN

Dr. N. R. Nowlin, 58 years old, Oklahoma City physician, died at his home, October 21, 1929, after a year's illness with cardiac asthma. He was born January 13, 1871.

Dr. Nowlin had lived in Oklahoma 35 years, 19 of which he had resided in Oklahoma City. He came to the state, settling in Eufaula, after his graduation from the University of Tennessee School of Medicine.

-He was a member of the Masons, Odd Fellows, Knights of Phythias, the First Baptist Church and the State Medical Society.

Besides his widow, Dr. Nowlin is survived by a sister and two sons.

Burial was in Terril, Texas, former home of Mrs. Nowlin.

## TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D. 912 Medical Arts Bldg., Oklahoma City

An Evaluation of the Leucocytic Reaction in the Blood As Found in Cases of Tuberculosis. E. M. Medlar. American Review of Tuberculosis, Sept., 1929.

Since 1926, the author has studied 120 cases of tuberculosis doing weekly total and differential leucocyte counts. He knew nothing relative to the extent or type of tuberculosis as judged by

the clinical findings and X-ray. The smears were stained with Wright's stain. Four hundred cells were counted in each smear.

The grouping of the cells in the differential count was that usually used—neutrophiles, eosinophiles, basophiles, lymphocytes (large and small), and mononuclears, transitional types and endothelial leucocytes.

After a diagnosis of tuberculosis has been established clinically, then the leucocytic reaction observed in the individual may be interpreted upon the pathogenesis of the disease. Unless the interpretation of the leucocytic reaction in the tuberculous is based wholly upon the pathology of the disease it is useless. If, however, one understands at what stage of the process the neutrophile, the mononuclear, leucocyte and the lymphocyte appear, and what happens as a result of their participation in the process, then one is able to interpret with surprising accuracy the status of the tuberculous process as a whole.

In the leucocytic reaction the mononuclear leucocyte represents new tubercle formation, the neutrophile represents tuberculous abscess formation and the lymphocyte indicates healing of the tuberculous process. The eosinophile and basophile appear to play no part in human tuberculosis.

It is the author's opinion that tuberculous individuals who maintain a septic leucocytic picture are apt to have hemorrhages, extensions, etc., at any time, so as long as such a leucocytic picture exists there is evidence that the tuberculous process is not healing, altho the clinical manifestations and the X-ray would suggest marked improvement.

The author also feels that individuals who show a high lymphocyte count, low neutrophiles and a slight increase of mononuclear leucocytes, do not have hemorrhages or serious spreads of their infection so long as they maintain such a leucocytic picture. This gives evidence that the tuberculous lesions are healing.

In the author's group of cases nine have died and twenty-two have had relapses, all of whom had a septic leucocyte count. None of the cases which have had a nonseptic leucocyte picture has had a clinical relapse.

Medlar has adopted the following rules. The septic picture requires the following: The total leucocyte count is above normal. In certain instances it may be normal or even below normal. The neutrophiles are always above 65 percent, usually 70 percent or more. The lymphocytes are never above 25 percent, usually below 20 percent. The mononuclears are usually above 8 percent, but may be as low as 5 percent. This type indicates that the main tuberculous process is undergoing abscess formation or an ulcerous condition is extending. Healing is not occurring. New tubercle formation is indicated if the nononuclears are above 9 percent.

The hyperplastc picture requires the following: The total leucocyte count is usually within normal limits, and is never greatly increased. The mononuclears are always above 10 percent, the neutrophiles below 60 percent, and the lymphocytes 25 percent or more. This indicates that new tubercles are being formed, but that those tubercles are not undergoing abscess formation. If the lymphocytes are above 30 percent it indicates that the process tends toward a healing stage.

For the best, or what one may designate as the nonseptic leucocytic picture, the following is required: The total counts must not exceed 10,000. The percentage of lymphocytes must be so high that it approaches closely the neutrophilic percentage. The mononuclears must not exceed 10 percent. Such a picture indicates that the main tuberculous process is healing, with very little evidence of new tubercle formation and not evidence of abscess formation.

## ORTHOPAEDIC SURGERY

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Edited by Earl D. McBride, M.D 717 North Robinson Street, Oklahoma City.

Malignant Bone Tumors. Vittorio Putti. Surg. Gynec. Osbtet., xlviii, 324, March, 1929.

It is the author's opinion that the problem of the skeleton, clinically considered, is first and foremost a problem of diagnosis. Early diagnosis is still the only certain way of ensuring a radical cure.

He believes the quotation of Murphy's still stands, that the diagnosis of sarcoma can and should be made by the history, and with the aid of skiagrams; he also believes that more than half the errors of diagnosis, and two-thirds of the delay in making a correct diagnosis, are due to inadequate attention to the history of the case, to incomplete examination of the patient, to delay in obtaining a skiagram, or the incorrect interpretation of it.

Trauma was a factor, which his histories revealed with great frequency as a cause of such tumors; forty-seven and sixteen one-hundredths percent of his cases showed this factor.

He accepts the premises of Segond, that isolated, direct trauma usually induced a tumor of the peripheral layers of bone with a short, latent period, whereas indirect trauma, open wounds, distortions, and fractures are causes of sarcomata with a long, latent period and a central situation.

In regard to symptoms, there are none specific. The peculiar quality of the pain should make one think of sarcoma. It is intense, dull, constant, and localized, but not accounted for by other local signs, however, in Ewing's tumor, there is an intermittent, spasmodic pain, associated with rise in temperature, suggestive of an inflammatory process.

In tumors of the pelvis and last lumbar vertebra, one may have pain which has all the characteristics of ordinary sciatica.

More important, in the author's opinion, than pain, is the location of the tumor. A tumor of the diaphysis is almost always an osteogenic sarcoma of periosteal type, or it is an endothelioma. A tumor of the metaphysis, if not benign, is sarcoma of central type; an epiphyseal tumor, in a great majority of cases, is a giant-cell tumor.

Tumors of the astragalus and os calcis are either giant-cell tumors or myxomata. A localized tumor of the vertebral column, unless it is secondary, is either an angioendothelioma or giant-cell tumor.

Many tumors, in the author's estimation, that are regarded as primary, are none other than isolated metastases of visceral neoplasms.

The X-rays in certain cases may alone suffice for the diagnosis, while in many others, it forms only one part of it. The author deplores the fact that X-rays are not taken early from seats of unexplained pain, although this may be often the first and only symptom of a sarcoma.

He believes that the biopsy should be done only by an expert pathologist, and states that in a great majority of cases, biopsy is inadequate, since bone tumor tissue is never homogeneous.

In regard to endothelioma, he calls attention to the mooted question as to whether it is a primary or secondary tumor. He is inclined to believe it is secondary, due to its extreme sensitiveness to the X-ray, for it is known that the metastases of a bone tumor have a similar sensitiveness. He calls attention to a more recent investigation by Professor Alessandra, which is daily gaining wider acceptance, that there exists carcinomatous and sarcomatous tumors of bone, which have originated from visceral blastomata, which cannot be diagnosed clinically, and proven by postmortem examinations.

As to treatment, he has used radium therapy in association with surgical treatment and has utilized it as the only method in dealing with in operable tumors. It has great value for relief of pain, especially in diffuse sarcomata. He has noted rapid disappearance of soft sarcomata, and more especially endothelioma with a few doses, but the disappearance is only temporary.

In osteogenic sarcoma he has had some success with tumors of the fiberomatous type, but none with the periosteal, subperiosteal, or telangiectatic.

Giant-cell tumors he treats surgically, but he has observed relapses and occasional metastases. He is inclined to believe that Ewing's proposal, to treat them by radiation alone, is more logical.

His results of the treatment of bone sarcoma have been discouraging. His few successes represent cases treated with amputation or disarticulation.

The solution lies in more extensive research in the study of tumors and early recognition of the condition, and for one to have the courage of one's conviction, to advise early radical measures.

Primary Osteomyelitis or Tumor Metastasis. R. Feci. Radiol. Med., xiv, 768, September, 1927.

The author describes a case of bone metastasis from a benign tumor (papilloma) of the renal pelvis diagnosed at the operating table and also histologically. After some months the manifestations in the bones were the only evidences that could be verified clinically, which explains why, when the patient presented clinical symptoms of an inflammatory process, the diagnosis was long in error. A roentgenological examination of the lungs, before intervening on the skeleton, revealed the existence of numerous metastatic foci disseminated throughout the lung tree. Thus the nature of the bone lesion was established. The author concludes, stressing the importance that a roentgenological search may assume in the diagnosis in retrospect of the malignity of a tumor that by its clinical course, by the biopsy at operation, and by the histological examination, was held to be benign.

Contribution to the Study of Osgood-Schlatter Disease. T. Anardi, Chir. d. org. di movimento, xii, 187, March, 1928.

The author reports a case of detachment of the anterior tuberosity of the right tibia in a youth of eighteen years. He gives the clinical and roent-genological study of the case as well as the microscopic examination of the fragments removed from the surface of the detached piece in which was revealed an irregular ossification and a notable retardation of the processes of calcification and of formation of osteoid tissue. From the aggregate of the data collected, it seems to the auhor that he must classify the case reported under the clinical picture known under the name of Osgood-Schlatter disease.

Regarding the pathogenesis of the affection which is still much discussed, the author, on account of the manner in which the lesion is caused, on account of the structural changes and on account of the roentgenological appearance of the small sella turcica, holds that the disease must be attributed to an endocrine disurbance in general with special regard to those glands that more divectly influence skeletal development in man, rather than to a traumatic or inflammatory factor.

The alterations or dysfunctions of these glands may be congenital and consecutive to disease in a majority of the cases of general type, therefore not a universal mechanism, though in most cases an endocrine disturbance.

Hallux Valgus, Merrill C. Mensor, California and West, Med., xxviii, 341, March, 1928.

The author has studied forty-one cases of hallux valgus in the orthopedic clinic of Stanford University, and has evidence to support the idea of congenital origin of this deformity. The most important finding is that a number of the patients showed a varus angulation of the first metatarsal and the children of some of these patients showed the same deformity. The cuneiform joint with the first metatarsal is set at an angle which sends the metatarsal off at a varus angle. The great toe then pushed over into a valgus angle by pressure of the shoe. In one case, this deformity extended through three generations.

Many patients have no symptoms until the fourth or fifth decade of their life when they be gin to have pain. The pain and not the deformity brings the patient to a doctor. Usually the joint is arthritic which may explain the pain coming on later in life.

In treatment, it is best not to operate on such a joint if definite arthritis is present. For the cases with bad varus angulation of the metatarsal, an osteotomy should be done on this bone at its base, as advocated by Ewald, and the metatarsal straightened.

The Cause of Development of Hallux Valgus and a New Physiological Method of Operation. J. E. Hagen-Torn, J. souremennoi Chir., ii, 789, 1927.

Reviewing in detail the pathological anatomy of this defect, the author explains the fallibility of all the advocated operative procedure, which have no sufficient physiological bases and are not in accord with the laws of statics and dynamics of the foot. The etiological theories of hallux valgus are rehearsed. The author believes that the me-

chanism of production of this deformity rests upon the action of the adductor hallucis. This muscle becomes contracted. Adduction contracture—as a result of the combined influence upon the head of the first metatarsal of the adductor muscle which is in structure and function stronger than its antagonist, the abductor hallucis, and the narrow and pointed shoe with its weakening influence upon the same muscle, the abductor. The operation advocated consists in transplanting the abductor hallucis muscle from the attachment on the inner sesamoid to the head of the proximal phalanx. This will suffice to cure the hallux valgus in mild conditions. In more severe cases, the author adds to this operation a cuneiform resection of the metatarsal shaft. For one week the foot is kept immobilized in a starch bandage; then the patient wears an arch support for two weeks longer. Sixteen cases have been dealth with in this manner and in fifteen the results were excellent.

The Pathology of Osteo-Arthritis of the Hip Joint, as Seen at Operation. Marian A. Radeliffe-Taylor. Med. J. Australia, Supplement, October 29, 1927.

The paper considers mono-articular hip joint trouble, occurring in adults, with characteristic deformity of the head of the femur and characteristic symptomatology. Charcot's disease, syringomelia, the end results of acute infective arthritis and the like are included.

The symptoms included: (1) Pain in the hip joint, the inner side of the thigh, and the knee—the latter, at times, without pain in the hip; increased standing, walking or any sudden movement, especially thigh rotation; (2) Stiffness, very gradually increasing; (3) The limp of an adducted and flexed limb. There is always a lumbar lordosis and external rotation, adduction, and flexion of the thigh, with limitation of movement in all directions, and muscle wasting. Attempts at inward rotation are painful.

Radiographically there two types: (1) The head of a normal shape, but with a collar of new bone at the margin of the articular surface of the femur and to a lesser degree at the margin of the acetabulum; (2) Flattening of the femoral head like an umbrella, with the collar of osteophytes encroaching on the neck of the femur. In both there is increased density of the head and neck. This disease has been called malum coxac senilis, hypertrophic osteo-arthritis, degenerative arthritis, and arthritis deformans. It differs entirely from rheumatoid arthritis.

The author has studied the pathology of sixteen cases at operation. On incising the capsule, yellow fluid escaped, showing that the disease is not essentially a dry process. The synovial membrane over the anterior aspect of the femoral neck and lower portions of the acetabulum is of dusky red color, with a coarse, villous appearance, and is considerably proliferated. This is not true of the portion behind the femur. The cartilage over the posterior-superior weight-bearing surface of the head is usually worn away, having smooth eburnated bone. The remaining cartilage is dull yellow, turbid, nontranslucent, rough and fibrillated, with irregular bosses and depressions. The cartilage covering the marginal osteophytes is of normal appearance. The acetabular cartilage feels smooth. The esteophytes are of cancellous bone with compact surface and covered by normal cartilage. The

changes in the acetabulum are of like kind but less degree.

Of the sixteen operated cases, fourteen were relieved of pain. The imflamed synovial membrane is accumulated in such position as to be compressed by those movements which cause pain in clinical examination; and this compression, and not pressure of the osteophytes against each other, is probably the cause of symptomatic pain. (Operation consisted of removal of the synovial membrane and osteophytes). Limitation of movement is caused more by muscle spasm than by locking of osteophytes.

The changes are the opposite of those seen in rheumatoid arthritis where the synovial pannus grows over the cartilage, destroying it in spots; whereas in osteo-arthritis the proliferating bone encroaches upon the synovial membrane. The author feels that osteo-arthritis is due to long continued mechanical misuse of a joint; but that rheumatoid arthritis is infectious in origin.

## DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D. 413 Medical Arts Buliding, Oklahoma City

Chronic Serpiginous Pyodermia. A. Tischnenko and A. Kroiczik, Dermat. Ztschr. 52:11, Feb., 1928.

Twelve cases of this disease have appeared in the literature since Zurhelle and Klein first described it in 1926. Tischnenko and Kroiczik now report three new cases. One of the patients was a man and the other two, women. All were in a poor state of nutrition. The absence of typical tubercles, the distinct undermining of the margins of the ulcer without festoon formation, the typical purplish color and the margins, the absence of the Wassermann and Pirquet reactions (except in one case, in which there was a weakly positive Pirquet reaction) the healing with formation of a smooth, livid scar, and the culture of staphylococcus pyogenes aureus from the tissues left no doubt of the diagnosis, once this disease was thought of. The histologic picture was typical of granuloma, with destruction of elastic fibers, glands and follicles. The disease appears in two forms: the erosive and the ulcerous. These three cases belonged to the ulcerous form. This form may be subdivided into two varieties, according to whether the process begins in the follicles or perifollicular tissue or whether the micro-organisms penetrate the skin through skin lesions, there being no connection with the follicles. Exhaustion of the organism, with altered reactivity of the skin, possibly also reduced virulence on the part of the micro-organisms, explains why the disease appears as a chronic instead of an acute inflammation.

Second Infection in Syphilis: Its Relation to the Time of Treatment of the First Infection. Chas. R. L. Halley and Harry Wassermann, Arch. Int. Med. 41:843, June, 1928.

All cases of reinfection reported since the discovery of the causative agent are given a statistical and analytic study. Only 237 of the 676 cases reported are deemed acceptable by the authors. Of these, 97.8 percent of the patients had received

treatment during the primary or secondary stage. Second infections occurred in 4 patients who had had syphilis in a latent form, and in one patient who presented undoubted evidence of congenital syphilis. There was not a single instance of a second infection in a patient who had previously had syphilis of either the central nervous system, or of the heart and aorta. The study indicates a close parallelism in man and in rabbits between the relation of the time of treatment of the first infection and the incidence of reinfections. The relative frequency of second infections in patients who had been treated early for the first occurrence as compared with the infrequency of second infections in patients who had not been treated early for the first attacks indicates that the time of treatment for the first infection has an important bearing on the patient's acquired resistance to a second attack. The authors point out that the relative infrequency of second infections, in patients whose treatment had been begun late in the course of the disease, is not in disharmony with the conception that acquired immunity to syphils may persist in the absence of syphilitic infection.

Poikilodermie-Civatte. E. G. Graham Little, Brit. J. Dermat., 40:231, June, 1928...

This article contains detailed reports of 9 cases of this condition in which the patients have come under the personal observation of the author since the two original cases reported by him in 1920. A short abstract of the 3 cases reported by Civatte in 1923 is also presented. The characteristics of Civatte's cases are discussed, in addition to reference to other cases reported by Civatte in 1906 as poikildermia vascularis atrophicans but classed by him later as a morbid type distinct from that of Jacobi. The condition presents the picture of a pigmentary disorder, in which mottling is the characteristic feature, potentially rapid in extension, accentuated on, if not restricted to, the face, and compatible with exceptional health, but apparently persisting indefinitely in the same positions.

A Contribution to the Histology of the Cylindromatous Tumors of the Scalp. J. H. Twiston Davies, Brit. J. Dermat. 40:241, June, 1928.

This article describes a case of a new growth of the skin imitating the structure of a sweat gland. The lesion occurred in the scalp of a girl, aged 18, and clinically resembled a granuloma pyogenicum. A detailed description of the histologic picture is presented with two photomicrographs. Reference is made to three cases described by Coenen in 1915, which the author discusses rather fully. Davies thinks that his case falls into the clinical category of hydro-adenoma cylindromatosum, as described by Coenen, in spite of the relative absence of cylindromatous formation in his case.

Studies of Calcium Metabolism in Certain Diseases of the Skin. N. Burgess, Brit. J. Dermat. 40:379, June, 1928.

This author carried out his work in an attempt to discover whether any abnormality of calcium metabolism, as shown by estimation of serum calcium, exists in those diseases of the skin in which the vegetative nervous system and the endocrine glands are believed to be primarily at fault.

The method of estimating serum calcium described by Laidlaw and Payne was used and the technique is outlined in the article. Numerous references in the literature are cited bearing on calcium metabolism in dermatology. Reference is made to the work of Vines and Grove, and the author states that the discovery of a normal figure for the total serum calcium in association with a diminished amount of precipitable calcium in many cases, and a diminution in both total and precipitable calcium in a few cases of certain diseases of the skin, confirms the work of these men. A marked diminution in precipitable calcium was noted in the vast majority of cases of urticaria, especially those with marked dermatographism, prurigo of the Besnier type, total alopecia areata, light sensitization of the adult type and eczema. Cases of acroasphyxia and erythema pernio can be divided into two groups—those with a greatly diminished precipitable calcium, and those in which the serum calcium is normal Treatment with calcium and parathyroid was attended with considerable improvement in those cases of urticaria, prurigo, eczema, and acro-asphyxia and chilblains associated with a low serum calcium. Diminished precipitable serum calcium was noted in only one case of psoriasis. A lowered serum calcium was noted in two of five cases of seborrheic dermatitis, these cases being accompanied by much secondary infection. One case of erythema multiforme showed a slight diminution in serum calcium, while normal figures were noted in respective cases of Darier's disease and acrodermatitis continua. Of the cases investigated, those in which the endocrine glands and sympathetic nervous system are believed to be primarly at fault showed a diminution in the precipitable calcium in the serum, while in most cases the total calcium was normal. It is believed that the dysfunction of the endocrine glands leads to an alteration in the chemical or physical state of the calcium in the serum, so that there is a diminution in the amount of calcium which can be used by the tissues. This is believed to cause an increased irritability of the sympathetic nervous system which leads to the formation of skin lesions.

Acanthosis Nigricans. Mario Artom, Gior. ital. di dermat. e sifil., 69:184, April, 1928.

Two cases of this disease are reported by the author. The first case is that of a man, aged 63, who had suffered from the condition for fifteen years. The patient was a degenerate. After one year he developed abdominal symptoms, and a diagnosis of carcinoma of the stomach was made. The diagnosis was verified as necropsy. The second case was that of a woman, aged 31, in whom the disease began at the age of 10 years. The condition was not malignant in this case. The author thinks that acanthosis nigricans is connected with some disturbance of the normal development of the patient and does not believe that the cutaneous disorder is directly in relation with the presence of an abdominal cancer.

Treatment of Malignant Tumors. R. Minervini, Riforma med. 44: 622, May, 1928.

The author believes in the parasitic nature of cancer. He has experimented in men and in animals with numerous chemical compounds and has arrived at the conclusion that salts of antimony exert a marked beneficial influence in cases of

cancer. He states, during the course of his experiments, that he has found that a combination of tartar emetic and extract of ipecac root gives the best results. He reports cases of all types of malignant tumors, including those of the skin, which have been apparently healed by intravenous injections of this combination. He thinks his treatment must be further tried before definite conclusions are drawn. The writer is a teacher of surgery at the University of Naples.

Unusual Reaction from Gold and Sodium Thiosulphate Injection in Treatment of Lupus Erythematosus. H. E. Alderson and S. C. Way, California & West. Med. 28:809, June, 1928.

These authors cite a case of lupus erythematosus in which three intravenous injections of gold and sodium thiosulphate, at five day intervals, were given. After the second injection there was noticeable improvement in the appearance of the process. There were no reactions of any kind until after the fourth dose, when a pale transitory erythema of the arms and neck was noted. A fifth injection was then given. Within twenty-four hours a severe reaction in the form of pyrexia (101 F.), angina and generalized erythema of the entire body with accentuation of the lupus erythematosus lesions took place. An intravenous injection of sodium thiosulphate (0.5 gm.) was then administered. The tourniquet was applied, not very tightly, around the arm just above the elbow. Within a few seconds a typical profuse purpura developed involving the entire skin from the tourniquet to the finger tips. The numerous lesions were from 2 to 4 mm. in diameter. There were no other symptoms. The purpura disappeared in about two weeks. The lupus erythematosus subsided completely, leaving only some pigmentation in its place.

EYE, EAR, NOSE and THROAT

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Edited by Jas. C. Braswell, M. D. 1109 Medical Arts Bldg., Tulsa

Otomastoiditis Due to the Pneumococcus Mucosus (Otomastoiditis a pneumococcus mucosus). Collet and Mayoux: Arch. Internat. de laryngol., 1929, xxxv, 331.

A patient thirty-six years of age was admitted to the hospital because of violent pains in the head developing in the course of acute otitis in the right ear. For eighteen days there had been a discharge from the right ear without pain or fever. There was no oedema or puffiness and no pain in the mastoid. Horizontal rotary nystagmus and signs of meningitis were present. The temperature was 39 degrees C., and the pulse 128. Lumbar puncture yeilded a thick liquid in which cytological examination revealed endothelial cells, lymphocytes, and polynuclears in a state of purulent degeneration and culture showed the presence of pneumococcus type 3.

At operation the mastoid was found very nearly entirely necrotic, but almost free from pus except in two large cells near the tip. Extensive curettage was done. The lateral sinus was blue and supple. Between the sinus and the osseous groove there was moderate venous haemorrhage. The dura was found normal. No extradural abscess was discovered.

Two days later the symptoms of meningitis were accentuated and there was retention of urine. On lumbar puncture the cerebrospinal fluid was found to be turbid. Death occurred on the following day.

In conclusion the author states that rapid extension of the osseous lesions, latency of the symptoms, and the frequent development of meningitis are characteristic of otomastoiditis caused by the pneumococcus mucosus.

The Present Status of Intranasal Operations for the Relief of Involvement of the Optic Nerve.

Fenton, R. A.: Arch. Otolaryngol., 1929, ix, 637. The author believes there should be less hesitancy on the part of the ophthalmologists with regard to having the sphenoids and posterior ethmoids opened in cases of optic neuritis and retrobulbar neuritis. He does not ignore causes of optic nerve involvement other than sinus infection—indeed, he emphasizes them—but he thinks the skepticism concerning the value of intranasal surgery which is voiced so repeatedly by prominent ophthal-mologists is due largely to the over-enthusiasm and lack of skill of some rhinologists. He discusses the brutality of certain operative procedures and then describes some of the more recent and less deforming methods. In discussing the findings in the sinuses he quotes several European and American pathologists who state that an acrid serous discharge is present much more frequently than pus. In the diagnosis of sinus infection the X-ray is seldom of aid.

Otomicroscopy on the Living Subject (Otomicroscopic sur le vivant). Luscher, E.: Arch. internat. de laryngol., 1929, xxxv, 302.

Luscher has made certain improvements in the otomicroscope recently described by him which simplify its use. With this instrument, which requires no cooperation on the part of the patient, a magnification of from ten to fifty diameters may be obtained with ordinary light. The examination is binocular, and two persons can view the enlarged image at the same time. Measurements may be made in three dimensions. Atrophy and perforation of the tympanum are differentiated without difficulty. Moreover, inspection of the edges of a perforation will show whether the lesion is old or recent, a matter of importance in establishing its relation to trauma. Small haemorrhages due to trauma may also be detected and are found much more frequently than is suggested by macroscopic examination or inspection with the lens.

When the otomicroscope is used with Siegle's speculum it is possible to determine with exactitude the state of tension and mobility of the tympanum as a whole and in its several parts. A vast field of research from the points of view of otological morphology and function has been opened up by details now for the first time made visible. One of the most interesting problems is the blood circulation in the tympanic membrane and the middle ear. The pressure in the smallest vessels can be measured with precision.

A number of images as they appear with the otomicroscope are reproduced in the article. Unfortunately, photography is not possible with the instrument. The otomicroscope is recommended

especially for teaching, for clinical examinations in which precision is essential, and for investigative work.

The Technique of the Use of Radium in Malignant Diseases of the Upper Air and Food Passages. Wright, A. J.: J. Laryngol. & Otol., 1929, xliv, 365.

As the use of radium in the treatment of malignant diseases of the upper air and food passages presents special problems, the author is trying to evolve a satisfactory technique for each anatomical region.

In the treatment of nasopharyngeal epitheliomate he embeds radium needles in a cast of the nasopharynx and fixes the cast in place by silk threads brought out through the nasal passages. In the pharynx, radium is embedded or attached to a dental plate. In the treatment of laryngeal growths, radium needles are buried after the thyroid and cricoid cartilages have been split and the laryngeal cavity has been opened. In cases of retrocricoid growths, the thyroid, cricoid, and upper rings of the trachea are split, a submucous removal of the posterior plate of the cricoid is done, and radium is placed in the cavity thus formed. In the treatment of lesions of the oesophagus, radium is placed around a Souttar tube which is then covered by a second rubber tube and left in place to allow feeding.



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